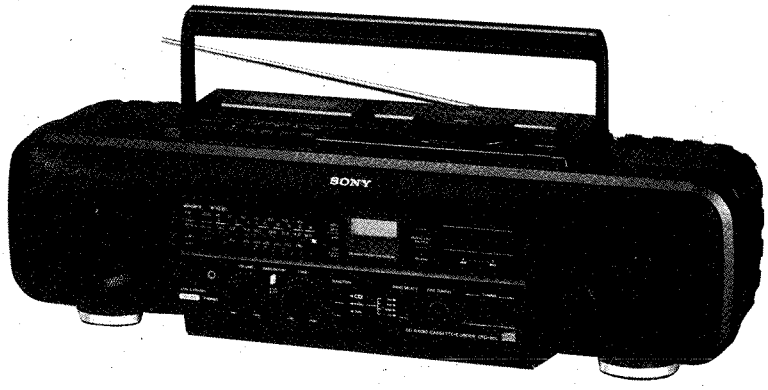
CFD-60L

SERVICE MANUAL

AEP Model
UK Model



Model Name Using Similar Mechanism	CD Section	NEW
	Tape Section	NEW
Optical Device Name		KSM-210BAN
Tape Transport Mechanism Type		MF-60-64

SPECIFICATIONS

CD player section

System: Compact disc digital audio system
Laser diode properties: Material: GaAlAs
Wavelength 780 nm
Emission duration: Continuous
Laser output: Less than 44.6μW
*This output is the value measured at a distance of about 200 mm from the objective lens surface on the optical pick-up block.

Frequency response: 20 — 20,000 Hz $^{+2}_{-1}$ dB
Wow and flutter: Below measurable limit

Radio section

Frequency range

	FM	MW	LW	SW
AEP, WG, UK model	87.6—107MHz	531—1602kHz	153—281kHz	5.95—18MHz
IT model	87.5—108MHz	526.5—1606.5kHz	148.5—283.5kHz	
Intermediate frequency	10.7MHz	455kHz		

— Continued on next page —

MICROFILM

CD RADIO CASSETTE-CORDER

SONY®

Tape recorder section and general

Recording system	4-track 2-channel stereo
Frequency response	60—10,000Hz (with TYPE I <NORMAL> cassette)
Speaker	Full-range speakers: 10 cm dia., cone type
Power output	Full-range speakers: 2W + 2W (at 3.2 ohms, 315Hz, 10% harmonic distortion)
Input	Mixing microphone input jack (minijack) Sensitivity 2.5 mV For low impedance microphone
Output	Headphone jack (stereo minijack) For 16—68 ohms impedance headphones

Power requirements		
	AEP, WG, IT model	220 V AC, 50 Hz
	UK model	240 V AC, 50 Hz

Power consumption	DC 9V, 6 R20 (size D) batteries AC 18W (AEP, WG, IT model) AC 20W (UK model)

Battery life

	FM recording
Sony SUM-1 (NS)	Approx. 11 hours
Sony Alkaline AM1 (N)	Approx. 17 hours

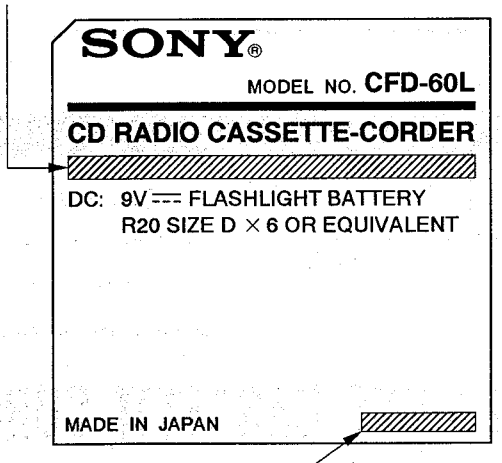
Dimensions	593 × 175.5 × 197 mm (w/h/d) ($23^3/_8 \times 7 \times 7^7/_8$ inches) incl. projecting parts and controls
Weight	Approx. 4.6kg incl. batteries (Approx. 10 lb 2 oz).
Supplied accessory	AC power cord (1)

Design and specifications subject to change without notice.

MODEL IDENTIFICATION

– Specification Label –

AEP, WG, IT model: AC: 220V~50Hz 18W
UK model: AC: 240V~50Hz 20W



AEP model : 4-931-364-01
WG model : 4-931-366-01
IT model : 4-931-395-01
UK model : 4-931-367-01

TABLE OF CONTENTS

Section *Title* *Page*

Specifications 1
Model Identification 2

1. SERVICING NOTES
Notes on Handling the Optical Pickup Block or Base Unit 3
Notes on Laser Diode Emission Check 3
Laser Diode and Focus Search Operation Check 3
Chuck Plate Jig on Repairing 3
Note on Repairing 3

2. GENERAL 4

3. DISASSEMBLY 4

4. MECHANICAL ADJUSTMENTS
Tape Recorder Section 6

5. ELECTRICAL ADJUSTMENTS
5-1. Tape Recorder Section 7
5-2. Radio Section 7
5-3. CD Section 9

6. DIAGRAMS
6-1. CD Section Block Diagram 13
6-2. Radio, Audio Section Block Diagram 15
6-3. Radio, Audio Section Printed Wiring Boards 17
6-4. Radio, Audio Section Schematic Diagram 21
6-5. CD Section Schematic Diagram 25
6-6. CD Section Printed Wiring Boards 29

7. EXPLODED VIEWS 31

8. ELECTRICAL PARTS LIST 36

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1
SERVICING NOTES

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

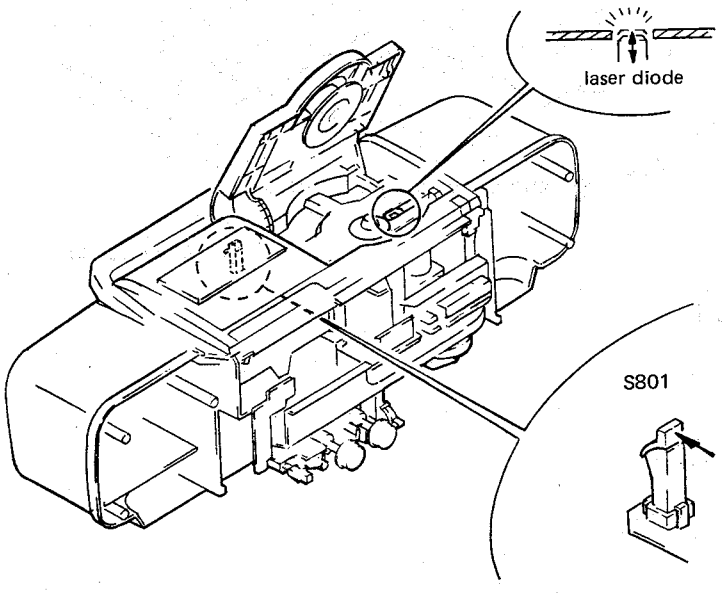
The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe more than 25 cm away from the objective lens.

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

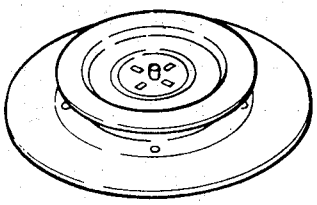
1. Remove the front cabinet assembly. (See page 4.)
2. Turn POWER switch on with no disc inserted and make Function switch to CD position.
3. Open the lid for CD.
4. Turn on S801 as following figure.
5. Press ▶ key.
6. Confirm the laser diode emission while observing the objecting lens. When there is no emission, Auto Power Control circuit or Optical Pick-up is broken.
   Objective lens moves up and down once for the focus serarch.



CHUCK PLATE JIG ON REPAIRING

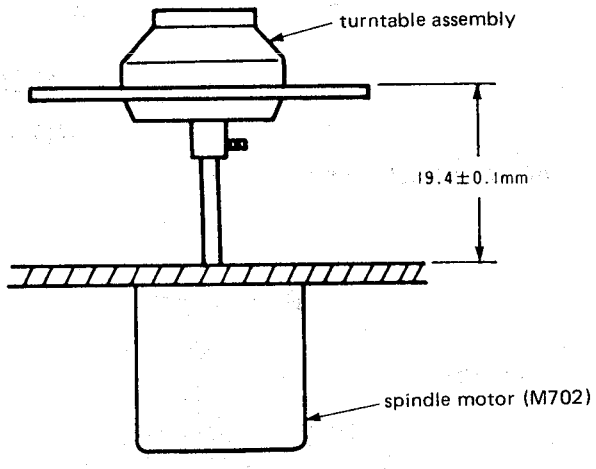
On repairing CD section, playing a disc without the CD lid, use Chuck Plate Jig.

- Code number of Chuck Plate Jig: X-4918-255-1



NOTE ON REPAIRING

The spindle motor (M702) and the turntable assembly are individually supplied as repair parts.
When repairing M702, please order the turntable assembly together.
Dimension is as follows.

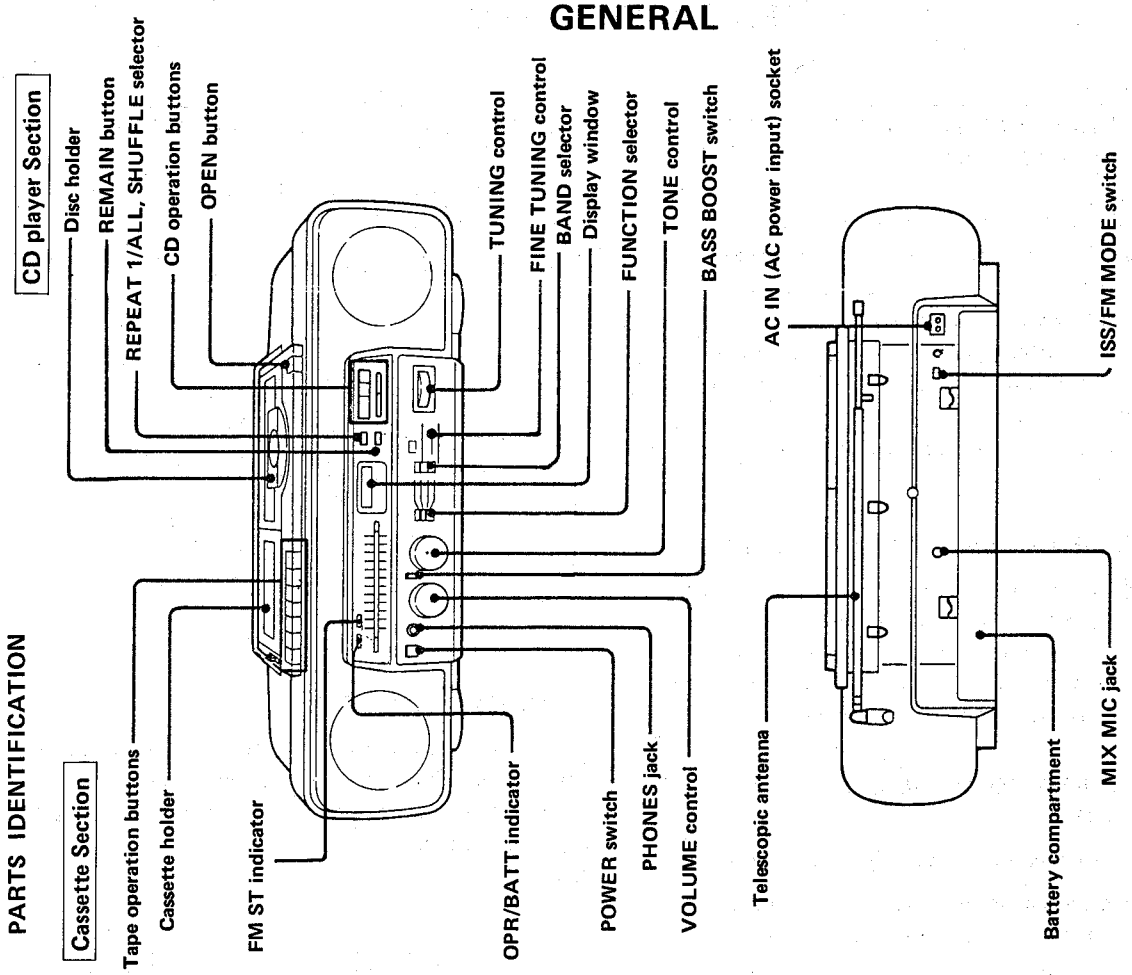


CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

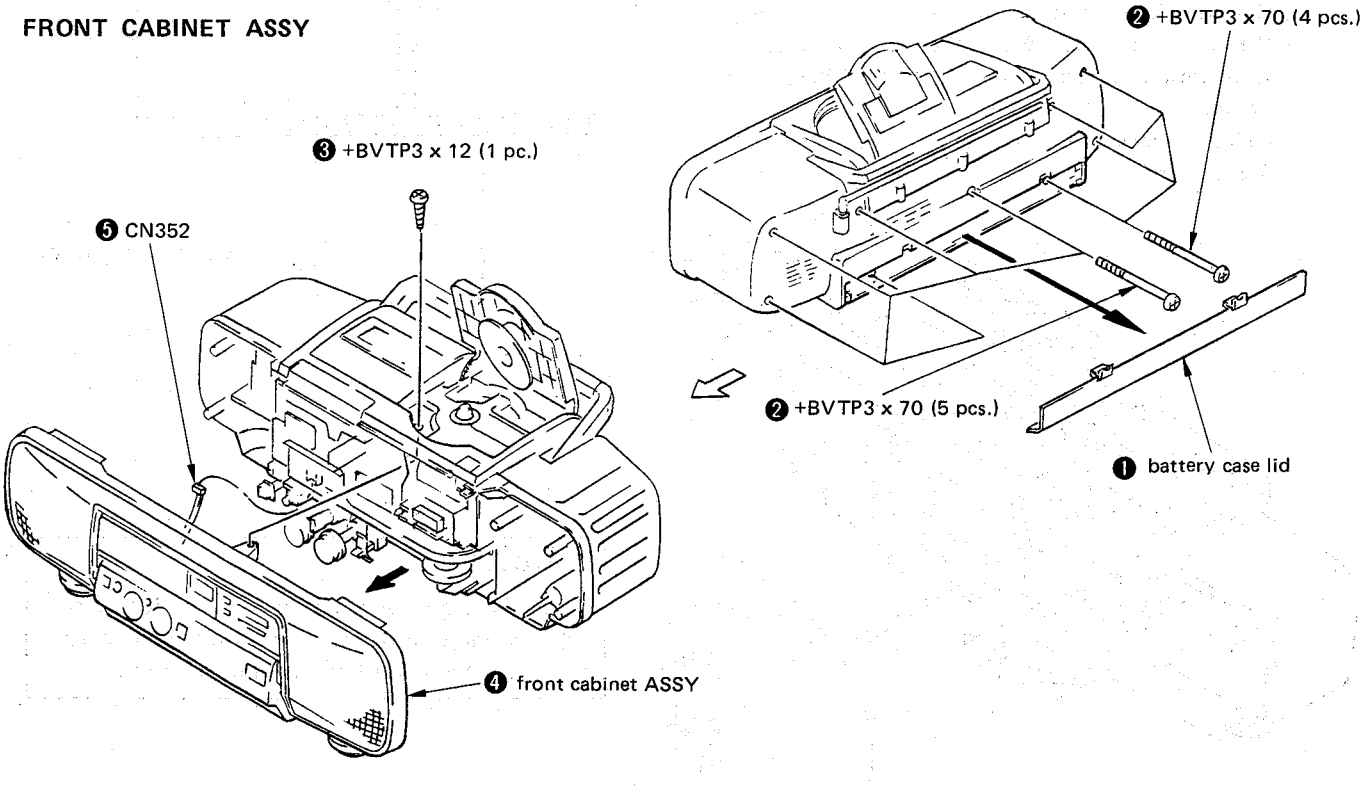
SECTION 2
GENERAL

PARTS IDENTIFICATION

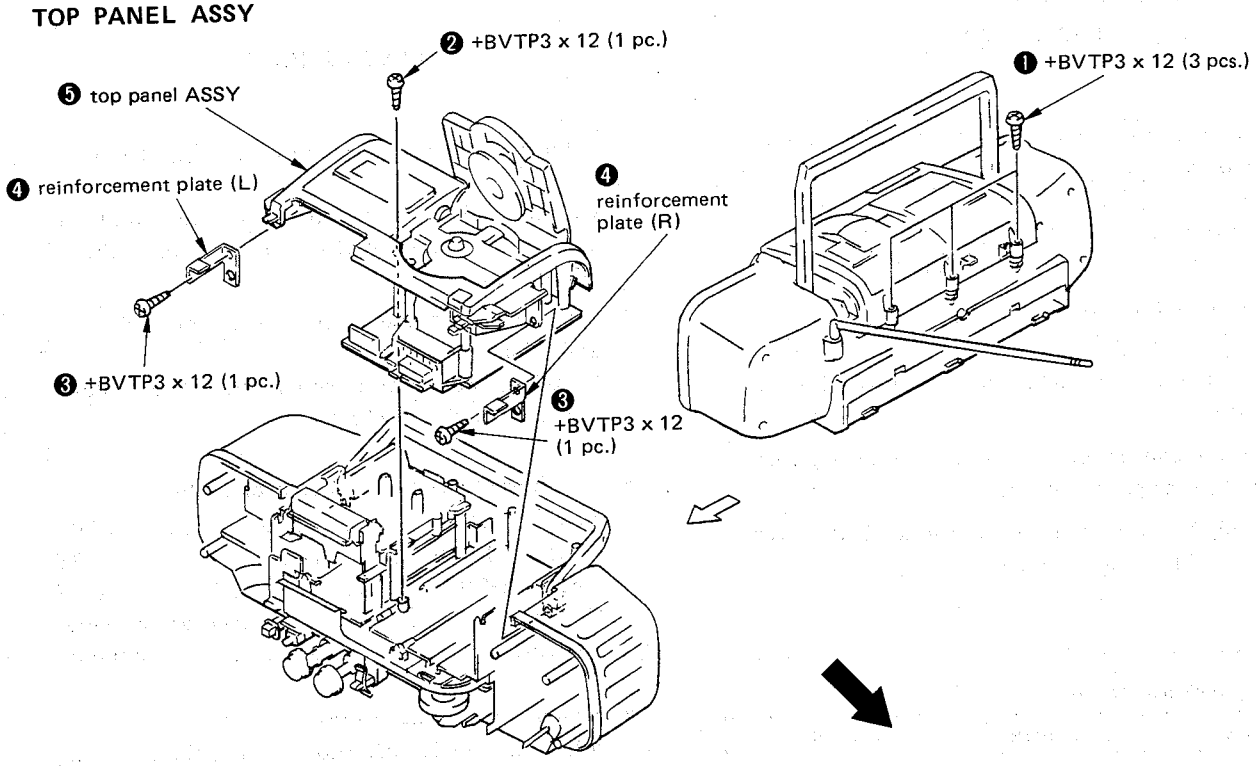


SECTION 3
DISASSEMBLY

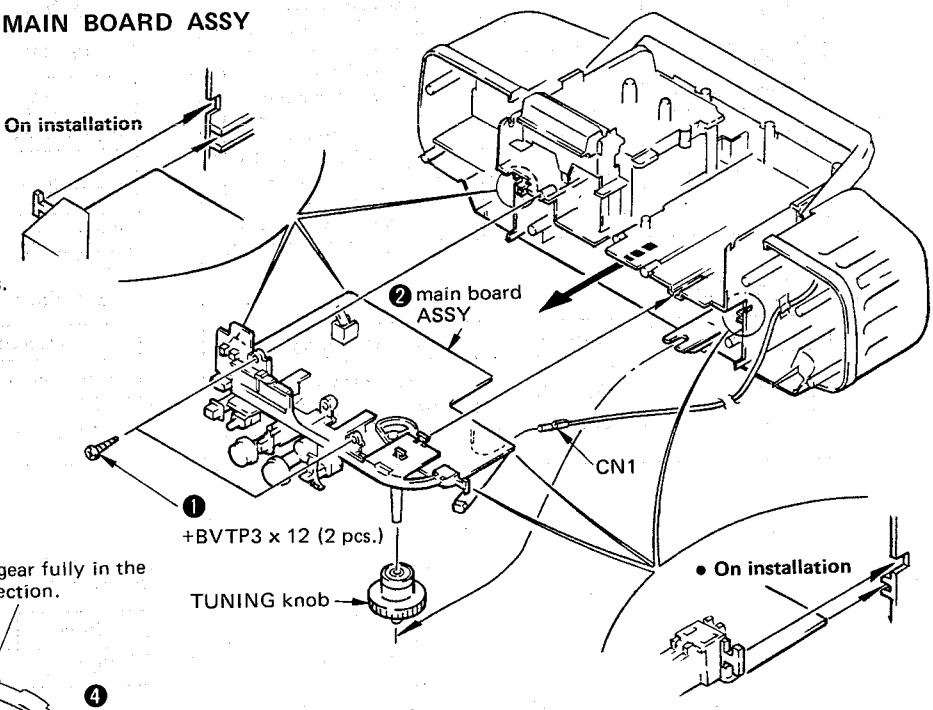
FRONT CABINET ASSY



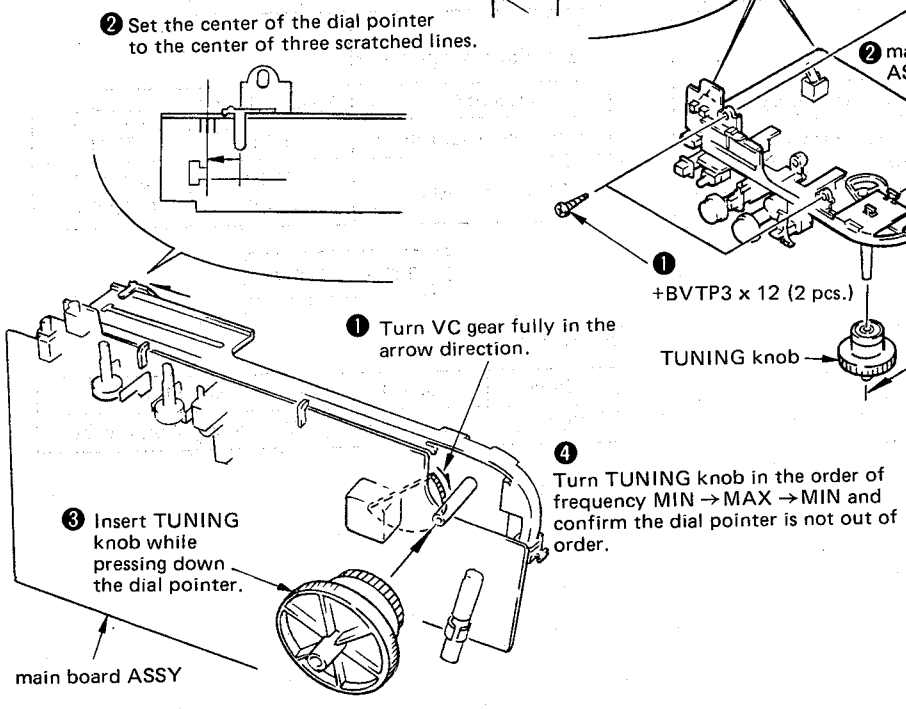
TOP PANEL ASSY


❷ +BVTP3 x 12 (1 pc.)
❶ +BVTP3 x 12 (3 pcs.)
❺ top panel ASSY
❹ reinforcement plate (L)
❹ reinforcement plate (R)
❸ +BVTP3 x 12 (1 pc.)
❸ +BVTP3 x 12 (1 pc.)

MAIN BOARD ASSY



DIAL POINTER SETTING


❷ Set the center of the dial pointer to the center of three scratched lines.
❶ Turn VC gear fully in the arrow direction.
❹ Turn TUNING knob in the order of frequency MIN → MAX → MIN and confirm the dial pointer is not out of order.
❸ Insert TUNING knob while pressing down the dial pointer.
main board ASSY

SECTION 4
MECHANICAL ADJUSTMENTS

TAPE RECORDER SECTION

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:
   record/playback head — pinch rollers
   erase head — rubber belts
   capstans — idlers
2. Demagnetize the record/playback/erase head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed in the order given in this service manual.

Torque Measurement

Mode	Torque meter	Meter reading
FWD	CQ-102C	20 to 60 g·cm (0.28 to 0.83 oz·inch)
FWD back tension		2 to 6 g·cm (0.03 to 0.08 oz·inch)
FF	CQ-201B	more than 50 g·cm (more than 0.69 oz·inch)
REW	CQ-201B	more than 50 g·cm (more than 0.69 oz·inch)

Tape Tension

Mode	Tension meter	Meter reading
FWD	CQ-403A	more than 70 g (more than 2.47 oz)

SECTION 5
ELECTRICAL ADJUSTMENTS

PRECAUTION

1. Adjustments should be performed in the order given.
   Generally playback circuit adjustments should be completed before performing recording circuit adjustments.
2. Adjustments should be performed for both L ch and R-ch.
   Switches and controls should be set as follows unless otherwise specified.

- **Positions of switches and control knobs**

FUNCTION . . . . . TAPE
ISS/FM MODE 2/ST
BASS BOOST . . . . . OFF
TONE . . . . . mechanical center
VOLUME . . . . . minimum

- Standard recording position
  Adjust the VOLUME knob so that the following regulated input/output signal levels are obtained.
- Standard input level

Input Pin	MIX MIC
Signal source impedance	300 Ω
Input signal level	2.5 mV (−50 dB)
Frequency	1 kHz

- Standard output level

Output Pin	Speaker (L, R)	PHONES
Signal source impedance	3.2 Ω	32 Ω
Output signal level	0.775 V (0 dB)	0.245 V (−10 dB)

0 dB = 0.775 V

- Test Tape

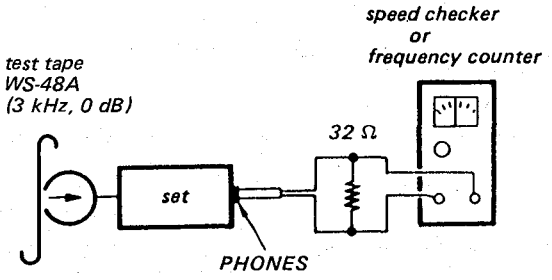
Type	Signal	Used for
WS-48A	3 kHz, 0 dB	Tape Speed Adjustment

5-1. TAPE RECORDER SECTION

Tape Speed Adjustment

Adjustment Procedure:

– Playback mode –



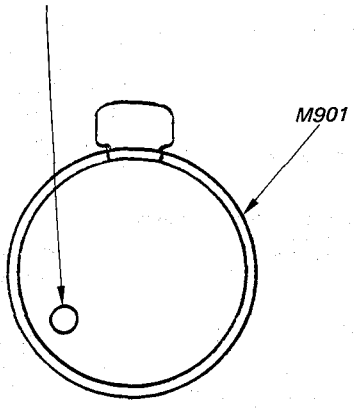
Adjustment Value:

Speed Checker	Frequency Counter
±2.5%	2,925 to 3,075 Hz

Frequency difference between the beginning and the end of the tape should be within 1% (30 Hz).

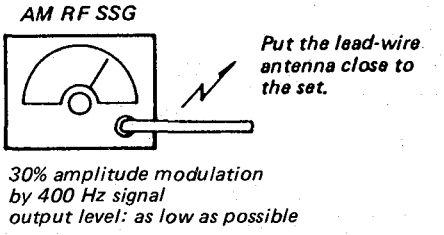
Adjustment Location:

Adjust the adjustment resistor built in the motor.
(Adjust with inserting the screwdriver. Turning clockwise makes the speed high.)

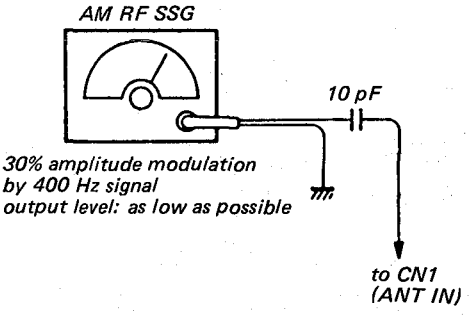


5-2. RADIO SECTION

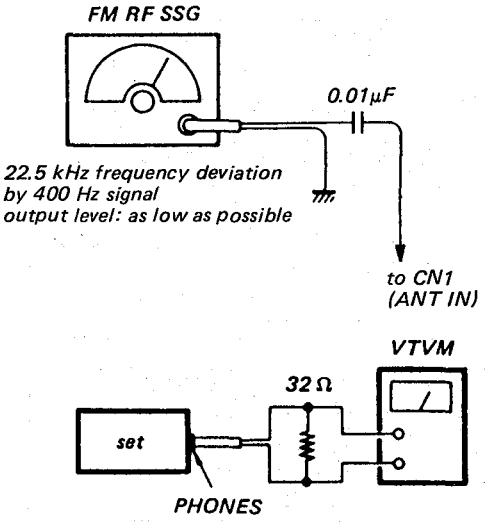
[AM]
FUNCTION switch: RADIO
FINE TUNING control: Mechanical center
BAND switch: MW, LW


AM RF SSG
Put the lead-wire antenna close to the set.
30% amplitude modulation
by 400 Hz signal
output level: as low as possible

BAND switch: SW



[FM]
FUNCTION switch: RADIO
BAND switch: FM



- **Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.**

AM IF ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
CP2	455 kHz

LW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
T3	145 kHz 140 kHz(Italian)
CT3	300 kHz 293 kHz(Italian)

LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L4	160 kHz
CT5	260 kHz

MW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
T2	518 kHz 516 kHz(Italian)
CT1-4	1,680 kHz 1,630 kHz(Italian)

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L3	620 kHz
CT1-3	1,400 kHz

SW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
T1	5.8 MHz
CT2	18.4 MHz

SW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
T4	5.8 MHz

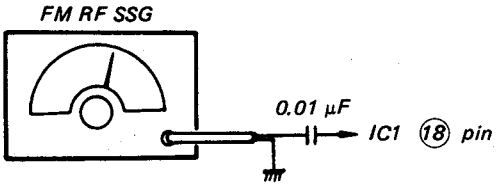
FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L2	87.0 MHz 87.35 MHz (West Germany, Italian)
CT1-2	108.3MHz 107.8 MHz (West Germany) 108.25 MHz (Italian)

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L1	87.0 MHz 87.35 MHz (West Germany, Italian)
CT1-1	108.3 MHz 107.8 MHz (West Germany) 108.25 MHz (Italian)

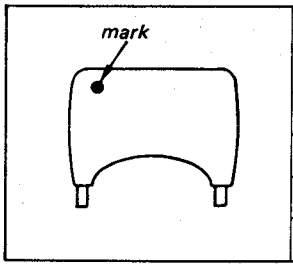
[FM VCO ADJUSTMENT]

Procedure:

- FUNCTION switch: FM



Carrier Frequency: According to the color of the mark on ceramic filter (CF2).

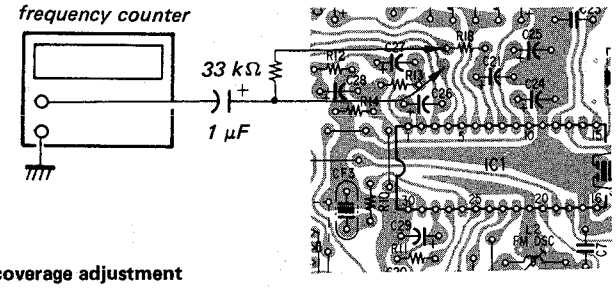


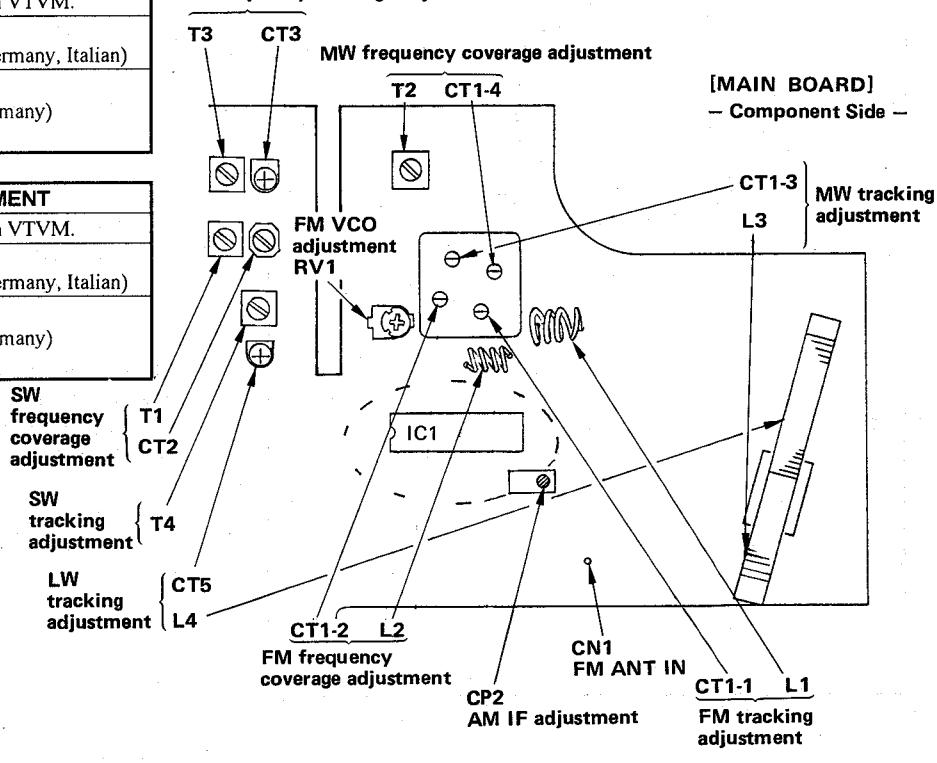
Mark	Carrier Frequency
red	10.7 MHz
blue	10.67 MHz
orange	10.73 MHz
black	10.64 MHz
white	10.76 MHz

Output Level: 100 dB (0.1 V)

1) Adjust with RV1 so that the reading on the frequency counter becomes 76.0 ±0.3 kHz.

Adjustment Location: main board





5-3. CD SECTION

Notes on Adjustment

1. Perform adjustment in service mode.
   After adjustment, be sure to release service mode.
2. Perform adjustments in the order given.
3. Use the disc (YEDS-18, Part No. 3-702-101-01) only when so indicated.

Before Adjustment

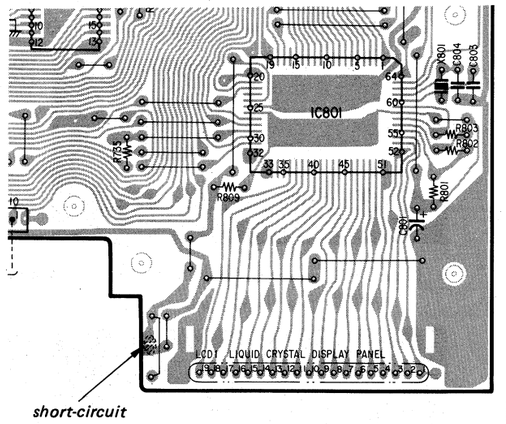
Put the set into service mode and perform the following checks. Repair if there are any problems.

- **Sled Motor Check**
  1. Press ▶ key → ■ key.
  2. Press ▶▶|, |◀◀ keys and confirm that the FOP moves smoothly from the innermost to outermost circumference and back smoothly and with no catching or abnormal noises.
     ▶▶| : FOP moves to the outer circumference
     |◀◀ : FOP moves to the inner circumference
- **Focus Search Check**
  1. Press ▶ key. (Focus search operation is performed continuously.)
  2. Look at the FOP objective lens and confirm that it moves up and down smoothly, with no catching or abnormal noises.
  3. Press ■ key.
     Confirm that focus search operation stops. If it does not, press ■ key again longer.

How to Put the Set into Service Mode

1. Short-circuit following portions on the CD main board.
2. Turn the POWER on.

CD main board (conductor side)



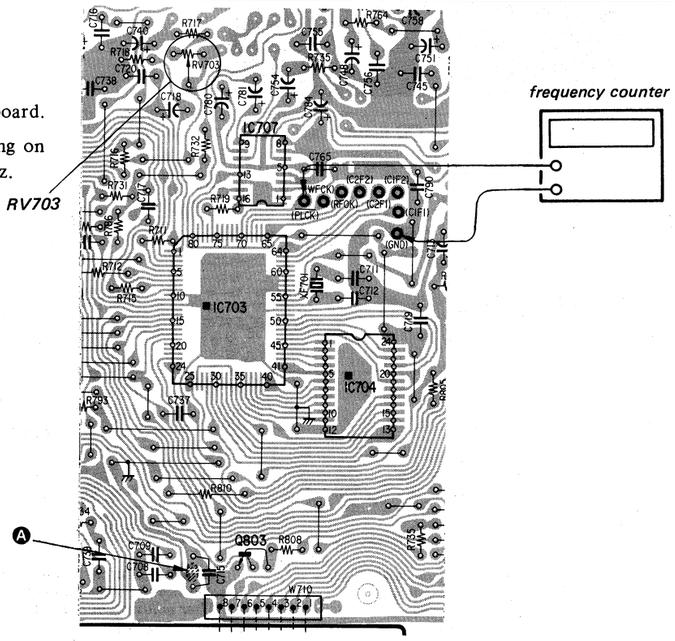
VCO Adjustment

Adjustment Procedure:

1. Short-circuit Ⓐ portion on CD main board.
2. Adjust with RV703 so that the reading on frequency counter becomes 4.3218 MHz.
3. Release the short-circuit Ⓐ portion.

Adjustment Location:

CD main board
(conductor side)

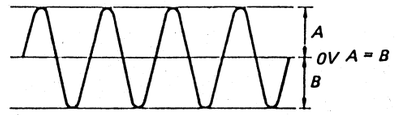


E-F Balance Adjustment

This adjustment is to be done when the optical block is replaced.

Adjustment Procedure:

1. Connect the oscilloscope between IC701 pins (1) and (26).
2. Put the set into service mode. (See page 9.)
3. Press the ▶▶| and |◀◀ keys to move the FOP to the center.
4. Insert disc (YEDS-18) and press ▶ key.
5. Adjust RV701 so that the oscilloscope traverse waveform is symmetrical, as shown in the figure below.
6. Release service mode after adjustment is completed.



VOLT/DIV: 1V
TIME/DIV: 1ms

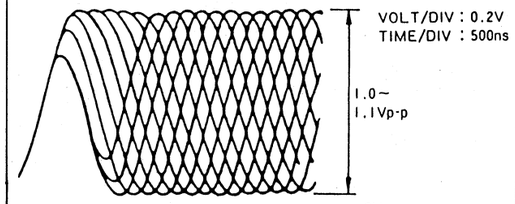
Focus Bias Adjustment

This adjustment is to be done when the optical block is replaced.

Adjustment Procedure:

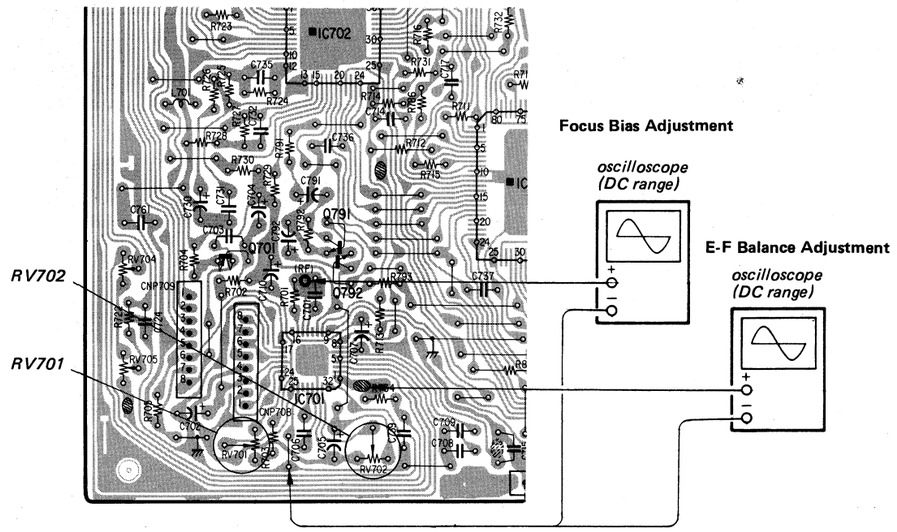
1. Connect the oscilloscope between IC701 pins (14) and (26).
2. Put the set into service mode. (See page 9.)
3. Press the ▶▶| and |◀◀ keys to move the FOP to the center. (Move the FOP to the music area on the disc to enable easy visibility of the eye pattern.)
4. Insert disc (YEDS-18) and press ▶ key.
5. Adjust RV702 so that the oscilloscope waveform is as shown in the figure below (eye pattern).
   A good eye pattern means that the diamond shape (◇) in the center of the waveform can be clearly distinguished.
6. Release service mode after adjustment is completed.

- RF signal reference waveform (eye pattern)



When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensitivity.

Adjustment Location: CD main board (conductor side)



Focus/Tracking Gain Adjustment

A frequency response analyzer is necessary in order to perform this adjustment exactly.

However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.

Focus/tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when the 2-axis device operate.

However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is raised, the noise when the 2-axis device operates increases.
- When gain is lowered, it is more susceptible to mechanical shock and skipping occurs more easily.
- When gain adjustment is off, the symptoms below appear.

Symptoms \ Gain	Focus	Tracking
• The time until music starts becomes longer for STOP ➡▶ PLAY or automatic selection (⏮, ⏭ buttons pressed. (Normally takes about 2 seconds.)	low	low or high
• Music does not start and disc continues to rotate for STOP➡▶ PLAY or automatic selection (⏮, ⏭ buttons pressed.)	–	low
• Sound is interrupted during PLAY. Or time counter display stops progressing.	–	low
• More poise during 2-axis device operation.	high	high

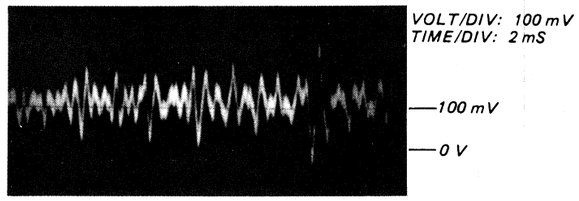
The following is a simple adjustment method.

– Simple Adjustment –

Note: Since exact adjustment cannot be performed, remember the positions of the controls before performing the adjustment. If the positions after the simple adjustment are only a little different, return the controls to the original position.

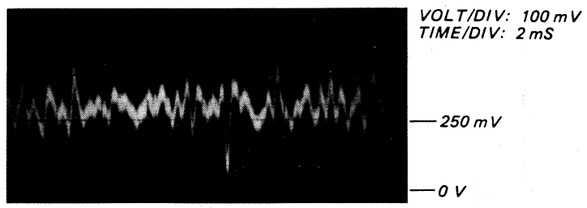
Procedure:

1. Keep the set horizontal.
   (If the set is not horizontal, this adjustment cannot be performed due to the gravity against the 2 axis device.)
2. Insert disc (YEDS-18) and press ▶PLAY button.
3. Connect the oscilloscope between IC701 pins (32) and (26).
4. Adjustment RV705 so that the waveform is as shown in the figure below. (focus gain adjustment)

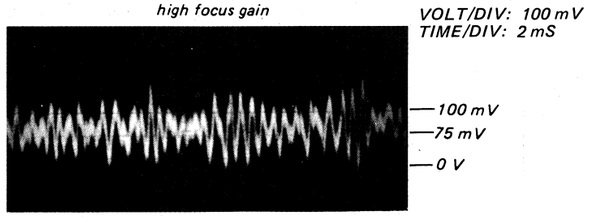


- Incorrent Examples (DC level changes more than on adjusted waveform)

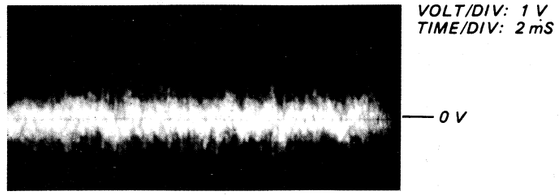
low focus gain



high focus gain

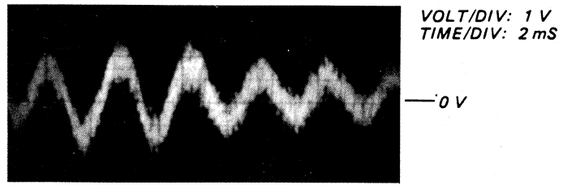


5. Connect the oscilloscope between IC701 pins (1) and (26).
6. Adjust RV704 so that the waveform is as shown in the figure below. (tracking gain adjustment)

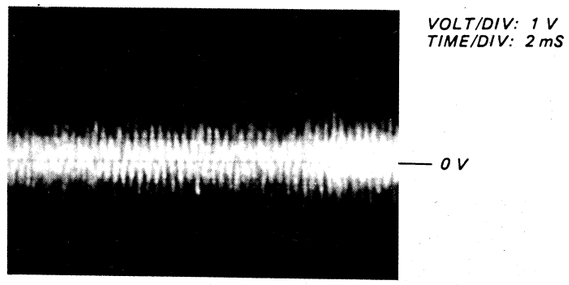


- Incorrect Examples (fundamental wave appears)

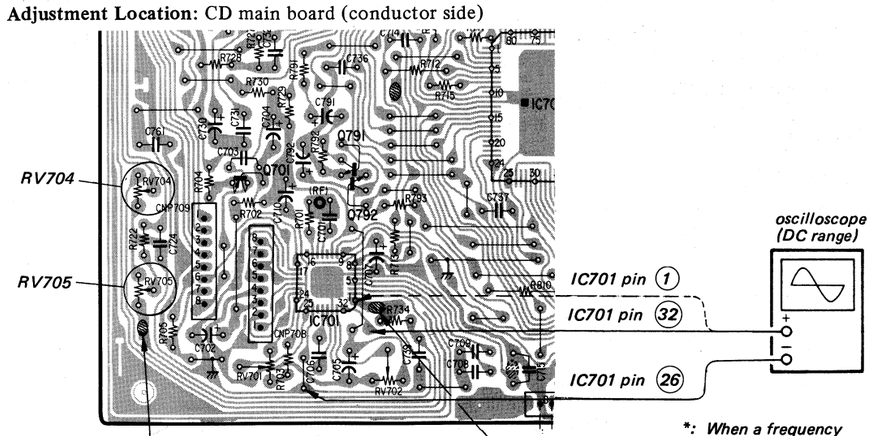
low tracking gain



high tracking gain
(higher fundamental wave than for low gain)

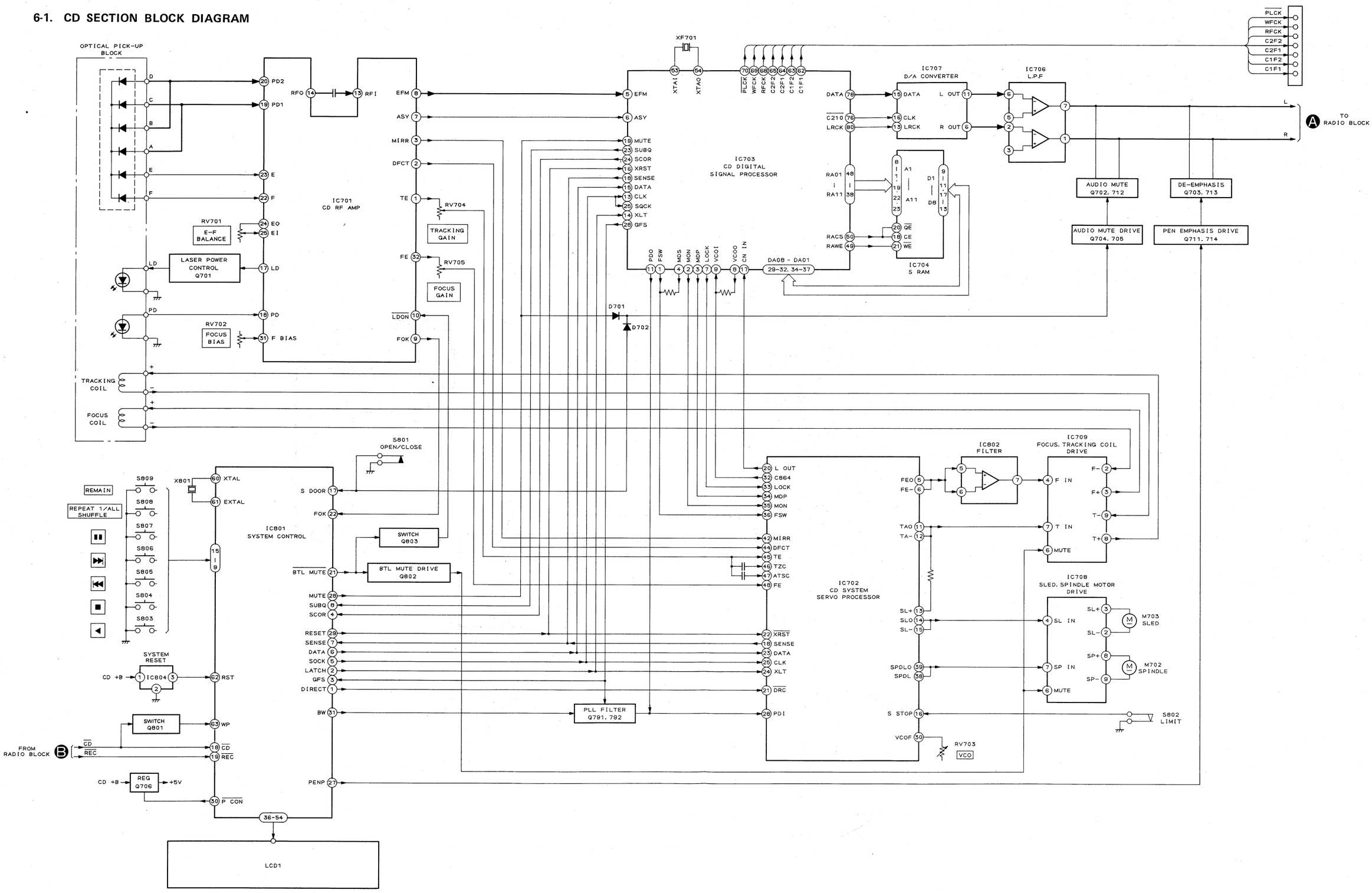


Adjustment Location: CD main board (conductor side)

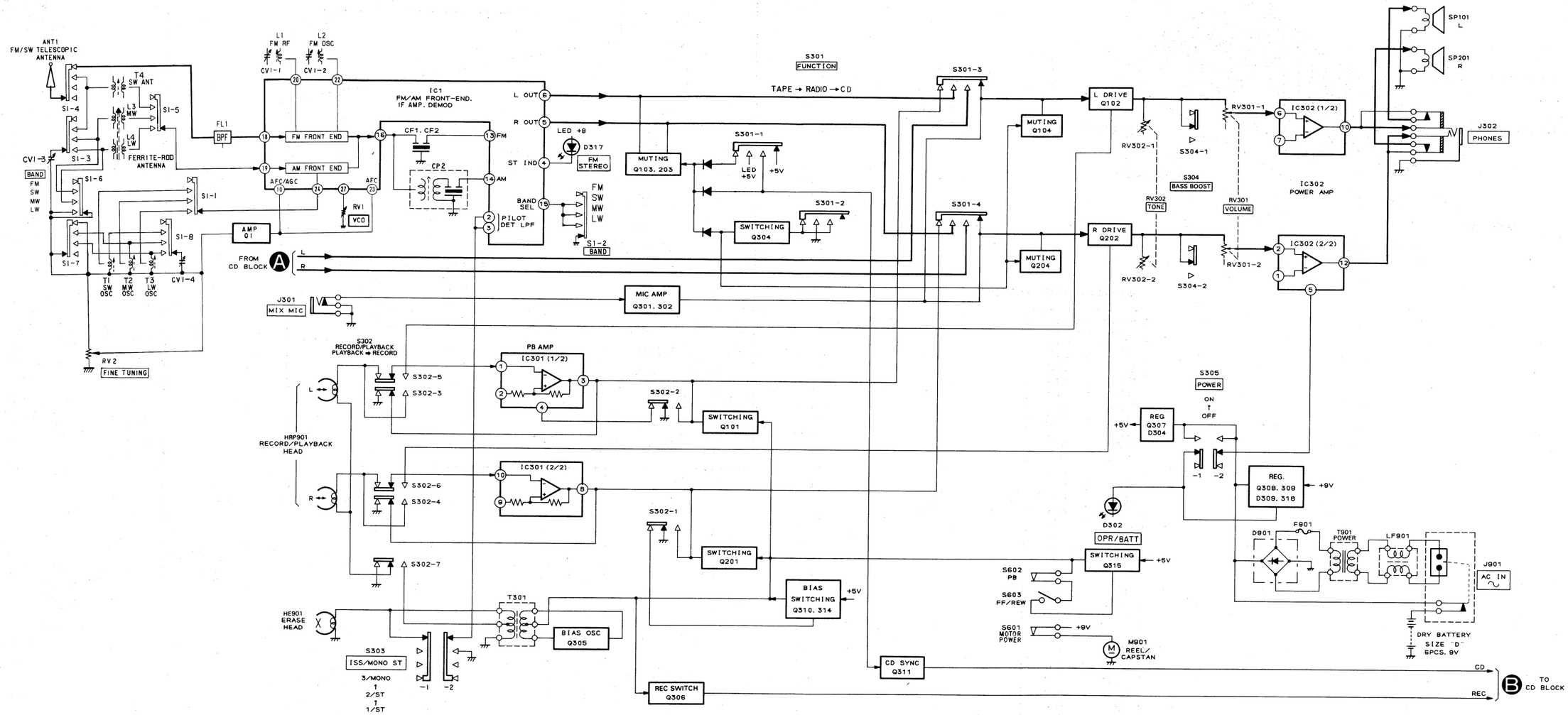

RV704
RV705
IC701 pin (1)
IC701 pin (32)
IC701 pin (26)
oscilloscope
(DC range)
*: When a frequency response analyzer is used.
Remove the solder bridge while adjusting the focus gain. (After adjustment make the solder bridge.)*
Remove the solder bridge while adjusting the tracking gain. (After adjustment make the solder bridge.)*

SECTION 6
DIAGRAMS

6-1. CD SECTION BLOCK DIAGRAM



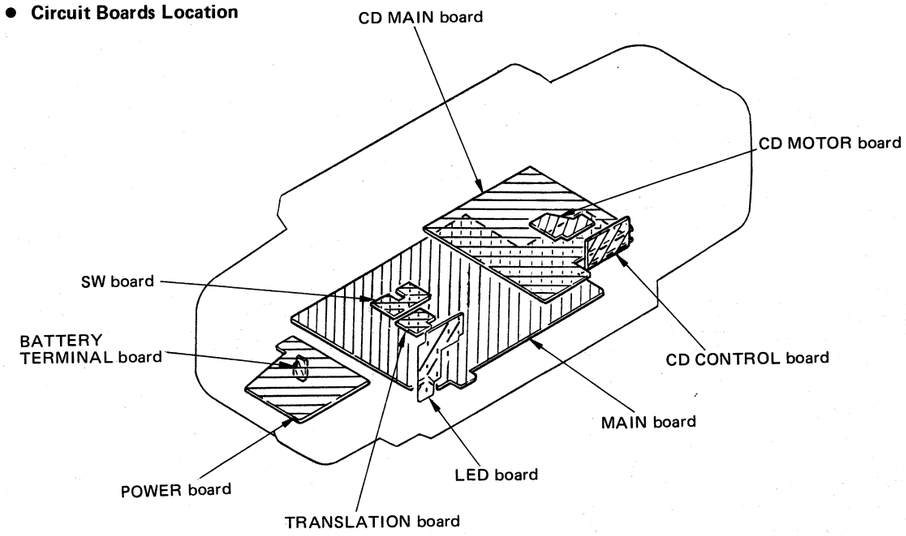
6-2. RADIO, AUDIO SECTION BLOCK DIAGRAM



6-3. RADIO, AUDIO SECTION PRINTED WIRING BOARDS

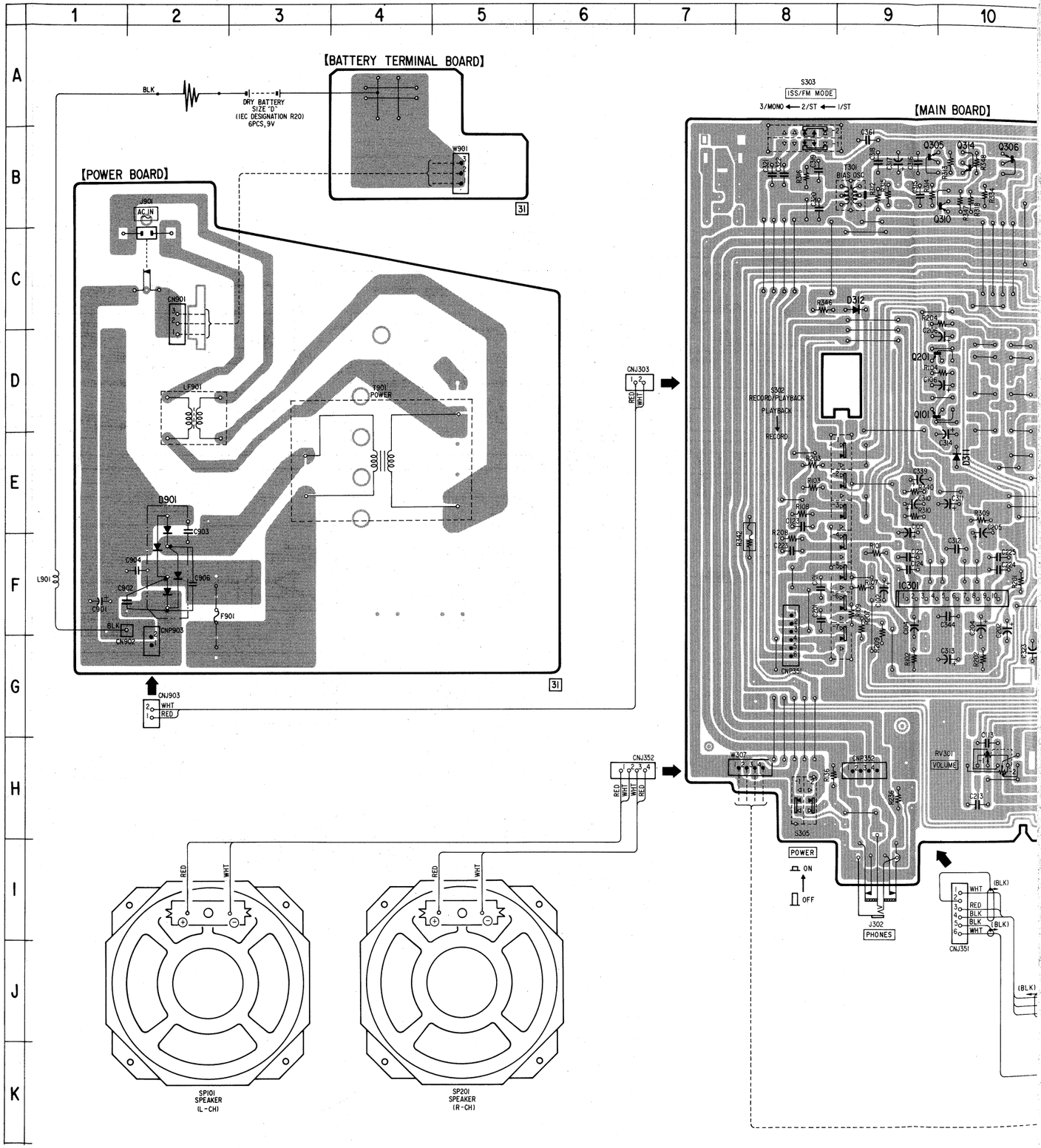
• See Page 24 for Semiconductor Lead Layouts.

• **Circuit Boards Location**



• **Semiconductor Location**

Ref. No.	Location
D1	E-18
D2	E-18
D3	E-18
D4	E-18
D302	E-22
D304	C-11
D305	H-13
D306	H-13
D307	H-13
D309	D-13
D311	E-10
D312	C-9
D315	B-14
D316	B-14
D317	F-22
D318	D-13
D901	F-2
IC1	F-16
IC301	F-10
IC302	B-12
Q1	H-16
Q101	D-10
Q102	F-12
Q103	C-14
Q104	F-11
Q201	D-10
Q202	G-12
Q203	C-14
Q204	G-11
Q301	C-15
Q302	C-15
Q304	H-13
Q305	B-9
Q306	B-10
Q307	D-11
Q308	D-13
Q309	D-13
Q310	B-10
Q311	E-13
Q314	B-10
Q315	F-11



【MAIN BOARD】

TO CD MAIN BOARD (B) (See page 30)

TO CD MAIN BOARD (A) (See page 30)

CNJ305 WHT

CNJ306 WHT

J301 MIX MIC

S303 FM MODE 2/ST ← 1/ST

IC302

IC301

IC1

Q305 Q314 Q306 Q310 Q307 Q308 Q309 Q311 Q315 Q104 Q102 Q204 Q202 Q103 Q203 Q301 Q302 Q201 Q101 Q1

D312 D304 D309 D310 D311 D307 D306 D305 D304 D316 D315 D3 D4

T301 BIAS OSC

CNP303 CNP304 CNP302 CNP305 CNP306 CNP352

CN305

S301 FUNCTION CD RADIO TAPE

S1 BAND FM SW MW LW

RV301 VOLUME

RV302 TONE

S304 BASS BOOST

RV2 FINE TUNING

ANT1 FM/SW TELESCOPIC ANTENNA

CNJ304 B A WHT

BLK CN1

LW/MW FERRITE-ROD ANT

L3 MW

L6

L4 LW

FL1 B.P.F

ITALIAN MODEL

FM-RF

FM OSC

CV1-1 CV1-2 CV1-3 CV1-4 CT1 CT2

CF1 CF2 CF3

T1 T2 T3 T4

31

ON OFF

J302 PHONES

CNJ302 WHT E D C B A

CNJ351 (BLK) WHT RED BLK BLK (BLK) WHT

HRP901 RECORD/PLAYBACK HEAD

(BLK) BLK RED WHT

HE901 ERASE HEAD

(BLK) WHT

【SWITCH BOARD】

CNJ601 E D C B A WHT

S603 (FF/REW)

S601 (MOTOR) (POWER)

S602 (PLAY)

CNP601

21

【LED BOARD】

D317 FM STEREO

D302 OPR BATT

R326 R327

CNJ307

【TRANSLATION BOARD】

CNJ504 A B WHT

CNP551 CNP504

CNJ551 WHT RED

C905

M901 REEL/CAPSTAN

WHT RED

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A B C D E F G H I J K

IC1 CXA1238S FM/AM FRONT-END IF, DEMOD

RF IN, FM RF, FM REG OUT, FM OSC, AFC, AM IN, AM OSC, GND, FE OUT, FM IF IN, AM IF IN, FM DISCRI, RIPPLE FILTER, MUTE, GND, VCC, TUNE IND, BAND, AFC/AGC, AFC/AGC, GND, R OUT, L OUT, ST IND, PILOT DET LPF, PLL LPF, PLL LPF, MPX REG, VCO

3.6 LED ON : 2.2

S303 MONO : 0.4 ST : 0.9

ANT1 FM/SW TELESCOPIC ANTENNA

CN1

FL1 B. P. F

D1 1SS133, D2 1SS133, D3 1SS133, D4 1SS133

C1 0.001μ

ITALIAN MODEL

CF1, CF2, CP1, CF3

R17 100k

R18 56

S1-1, S1-2 (LW ← MW ← SW ← FM), S1-3, S1-4, S1-5, S1-6, S1-7, S1-8

S1 BAND: FM, SW, MW, LW

T1 SW, T2 MW, T3 LW, T4 SW

L1, L2, L3 MW, L4 LW, L5 0.47μH, L6 33μH, L7 10μH

CV1-1, CV1-2, CV1-3, CV1-4, CT1-1, CT1-2, CT1-3, CT1-4, CT2, CT3

RV1 22k, RV2 100k (B) FINE TUNING

Q1 2SC2724TP C

*:

	AEP/UK	Italian	West Germany
C2	24P	24P	27P
C3	27P	27P	30P
C9	22P	24P	22P
C17	2.2P	3.3P	2.2P

[LED BOARD] (1/2)

W307(1/2), CN307(1/2), D317 SLB55VR

LED +B, +B, GND, L, R, MONO/ST

[MAIN BOARD]

B TO CD MAIN BOARD CN705 (See page 27)

CN305: L, R, G, +B, LED +B, MONO/ST

4 FUNCTION(RADIO) : 0

Q103, 203 MUTING; Q203 DTC144ES; Q103 DTC144ES

Q301, 302 MIC AMP; Q301 2SC1740S-S; Q302 2SC1740S-S

J301 MIX MIC

S301 FUNCTION TAPE ⇒ RADIO ⇒ CD; Q304 DTA144ES

S301-1, S301-2, S301-3, S301-4

Q102 2SC1740S-L DRIVE; Q202 2SC1740S-R DRIVE; Q104 DTC144ES; Q204 DTC144ES

Q104, 204 MUTING

S304 BASS BOOST ON/OFF; S304-1, S304-2

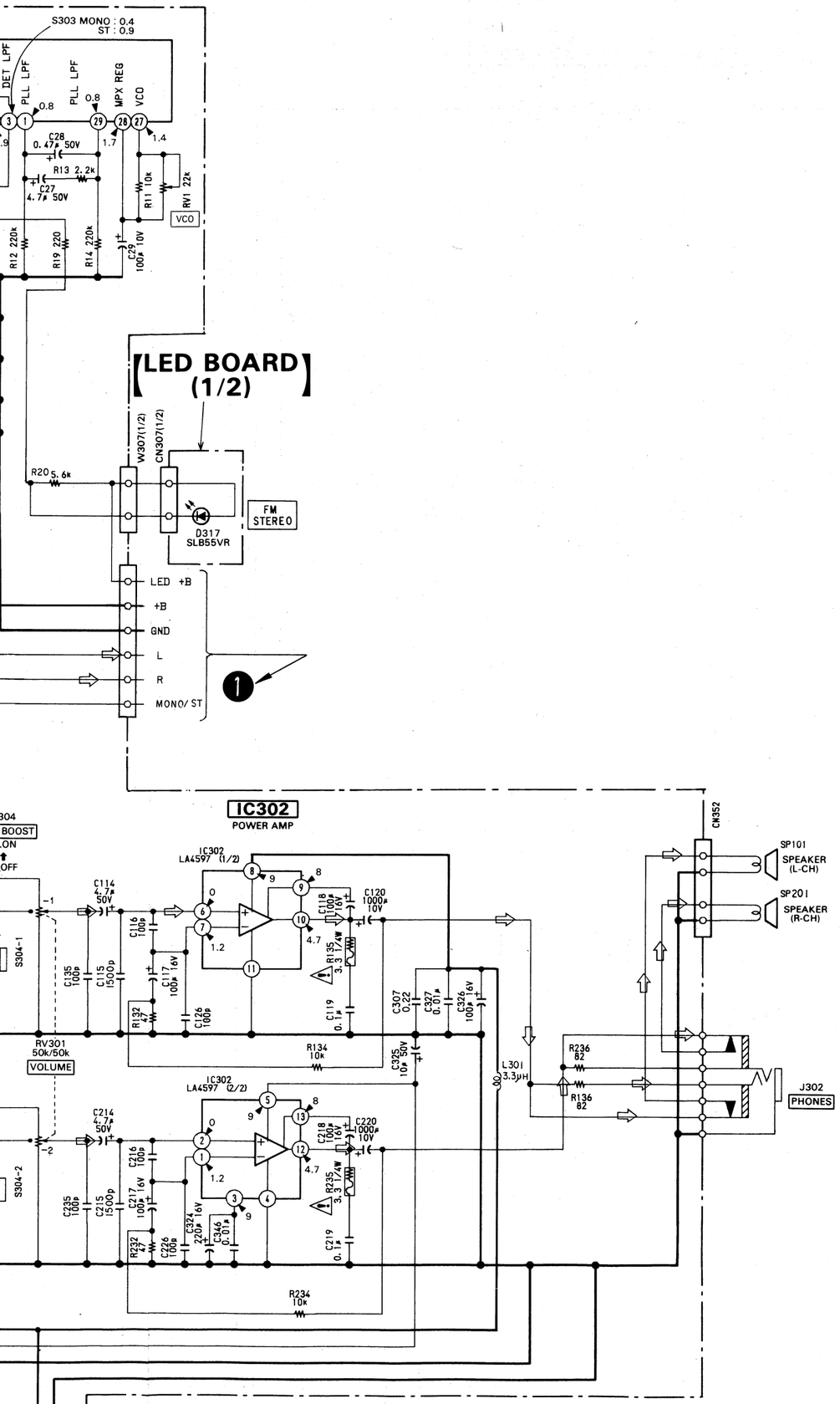
RV301 50k/50k VOLUME; RV302 50k/50k TONE

IC302 LA4597 (1/2), IC302 LA4597 (2/2)

IC301 BA3312N (1/2)

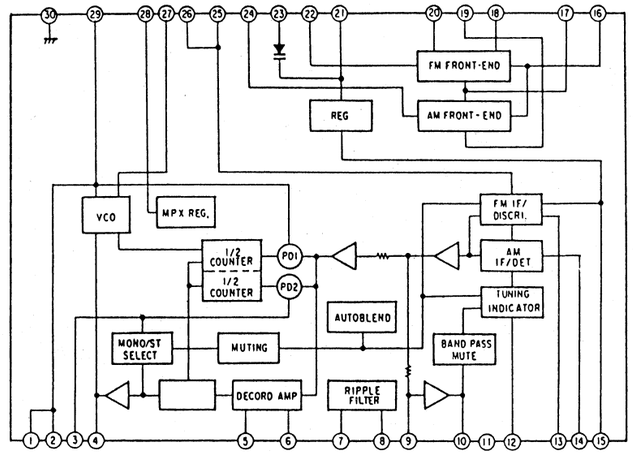
Q307 2SD1944K REG.

R322 1/4W ⚠



● **IC Block Diagram**

IC1 CXA1238S



Note on Printed Wiring Boards:

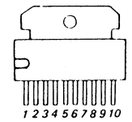
- ○—— : parts extracted from the component side.

Note on Schematic Diagram:

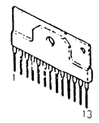
- All capacitors are in µF unless otherwise noted. pF: µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- : fusible resistor.
- : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  Radio section
  no mark: FM
  ( ): SW
  < >: MW
  [ ]: LW
  Tape section
  no mark: PLAY
  ( ): REC
  CD section
  no mark: STOP
  ( ): PLAY
- Voltages are taken with a VOM (10 MΩ/V). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
  : FM : PB
  : REC
  : CD

● **Semiconductor Lead Layouts**

BA6293

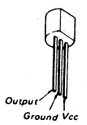


LA4597

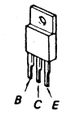


2SB1013-3
2SC2001

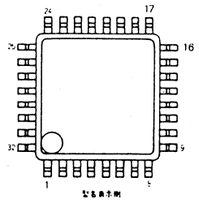
PST529E



2SD1944-K

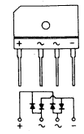


CXA1081Q

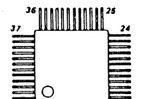


RC4558P

D3SBA10

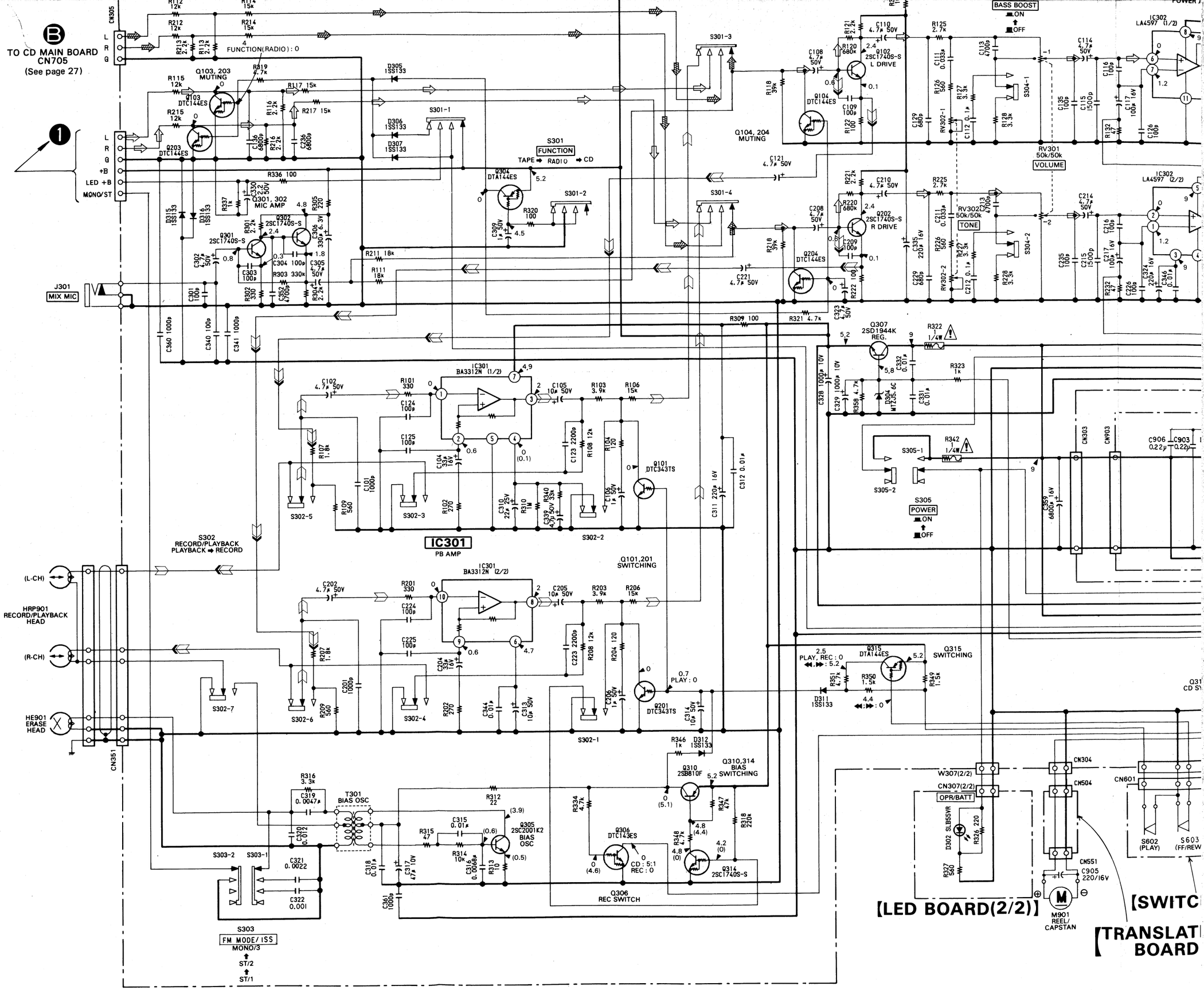


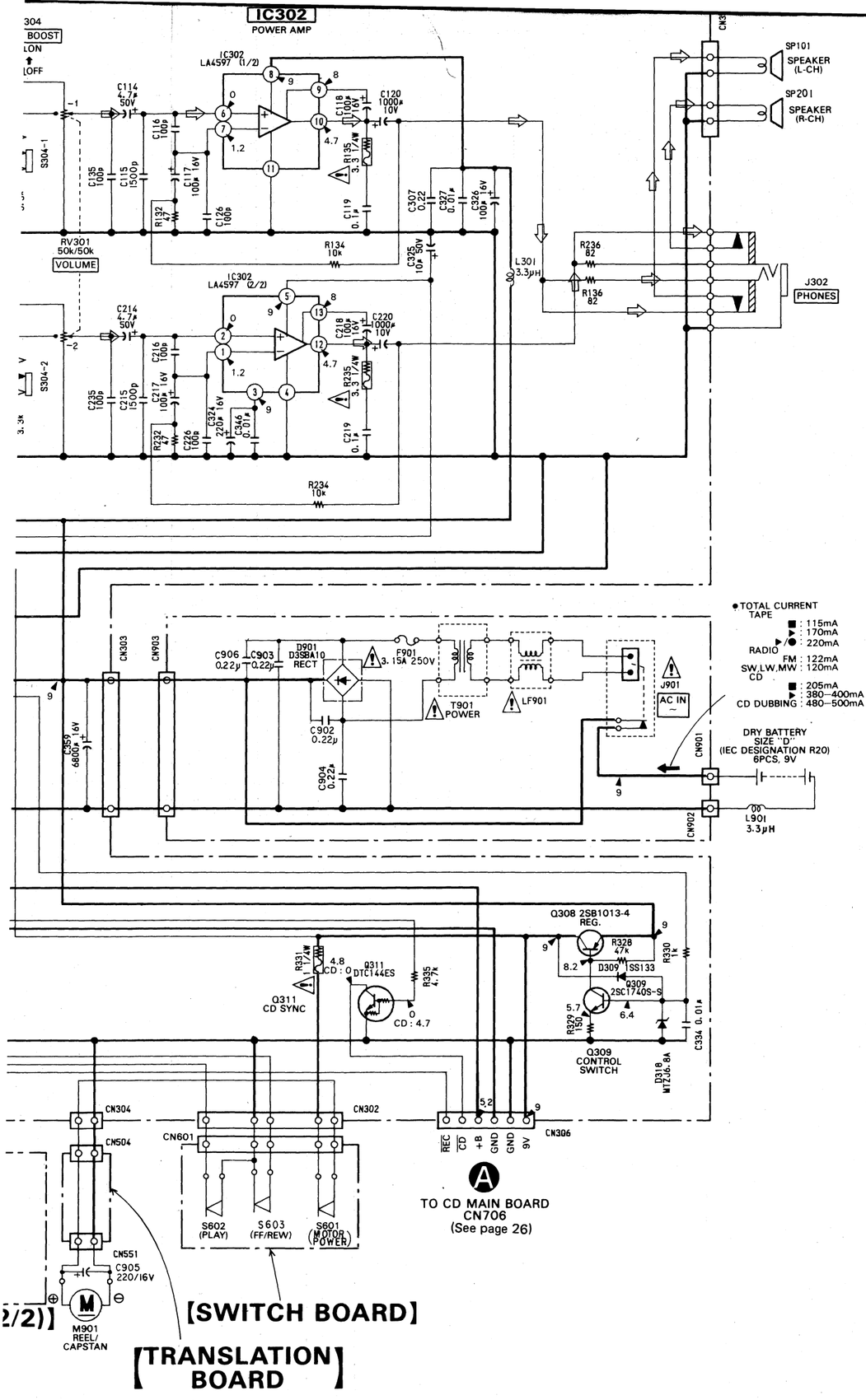
CXA1182Q-Z



DTA124ES
DTA144ES
DTC124ES

RD5.6ES-B2


TO CD MAIN BOARD CN705 (See page 27)
CN305
L
R
G
FUNCTION(RADIO) : 0
Q103, 203 MUTING
Q103 DTC144ES
Q203 DTC144ES
S301-1
S301-2
S301-3
S301-4
S301 FUNCTION TAPE ➡ RADIO ➡ CD
Q304 DTA144ES
+B
LED +B
MONO/ST
Q301, 302 MIC AMP
Q301 2SC1740S-S
Q302 2SC1740S-S
J301 MIX MIC
Q104, 204 MUTING
Q102 2SC1740S-S L DRIVE
Q104 DTC144ES
Q202 2SC1740S-S R DRIVE
Q204 DTC144ES
BASS BOOST ON OFF
RV301 50k/50k VOLUME
RV302 50k/50k TONE
IC302 LA4597 (1/2)
IC302 LA4597 (2/2)
Q307 2SD1944K REG.
S305-1
S305-2
S305 POWER ON OFF
IC301 BA3312N (1/2)
IC301 PB AMP
IC301 BA3312N (2/2)
Q101,201 SWITCHING
Q101 DTC343TS
Q201 DTC343TS
S302 RECORD/PLAYBACK PLAYBACK ➡ RECORD
S302-1
S302-2
S302-3
S302-4
S302-5
S302-6
S302-7
(L-CH)
HRP901 RECORD/PLAYBACK HEAD
(R-CH)
HE901 ERASE HEAD
CN351
Q315 SWITCHING
Q315 DTA144ES
D311 1SS133
Q310,314 BIAS SWITCHING
Q310 2SB810F
Q314 2SC1740S-S
T301 BIAS OSC
Q305 2SC2001K2 BIAS OSC
Q306 DTC143ES
Q306 REC SWITCH
S303-2
S303-1
S303 FM MODE/ ISS MONO/3 ST/2 ST/1
CN303
CN903
CN304
CN504
CN601
W307(2/2)
CN307(2/2)
OPR/BATT
D302 SLB55VR
CN551
C905 220/16V
M901 REEL/ CAPSTAN
S602 (PLAY)
S603 (FF/REW
[LED BOARD(2/2)]
[SWITC
[TRANSLAT
BOARD

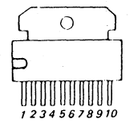


Note on Schematic Diagram:

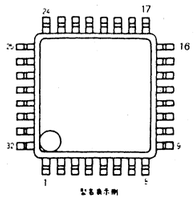
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- : fusible resistor.
- : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  Radio section
  no mark: FM
  ( ): SW
  < >: MW
  [ ]: LW
  Tape section
  no mark: PLAY
  ( ): REC
  CD section
  no mark: STOP
  ( ): PLAY
- Voltages are taken with a VOM (10 MΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM ⇨ : PB ⇨⇨ : REC ⇨⇨ : CD

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

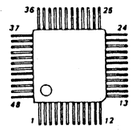
BA6293



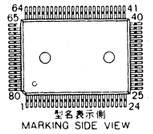
CXA1081Q



CXA1182Q-Z

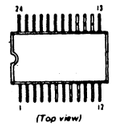


CXD1130Q

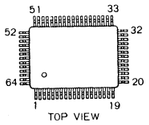


MARKING SIDE VIEW

CXK5816M-12L

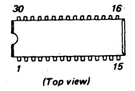


CXP5024-083Q



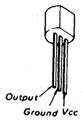
TOP VIEW

CXA1238S



LA4597

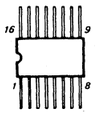
PST529E



RC4558P

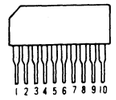
DTA124ES
DTA144ES
DTC124ES
DTC143TS
DTC144ES
2SC2724C

μPD6372GS



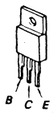
DTC343TS
2SA1150
2SA1175HFE
2SC2785HFE

BA3312N

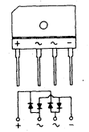


2SB1013-3
2SC2001

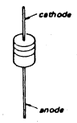
2SD1944-K



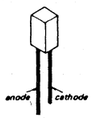
D3SBA10



RD5.6ES-B2
RD6.8ES-B1
1SS119

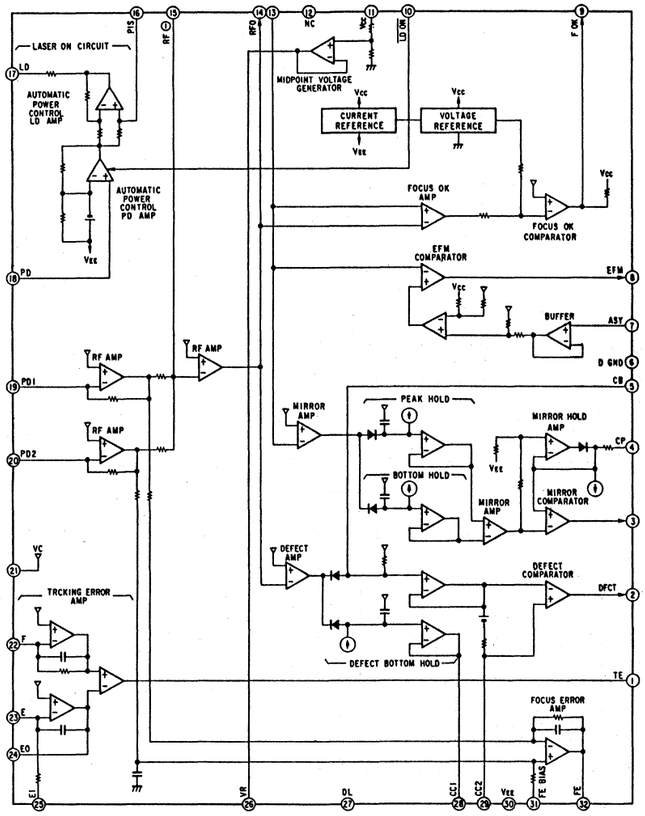


SLB-55VR70F140

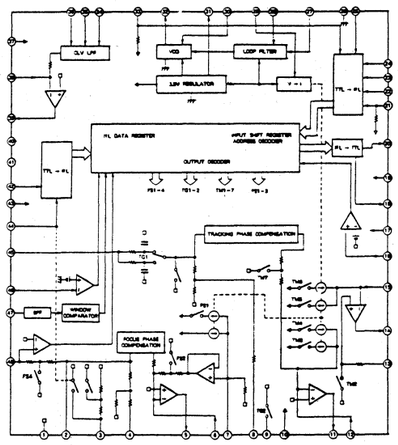


• IC BLOCK DIAGRAM

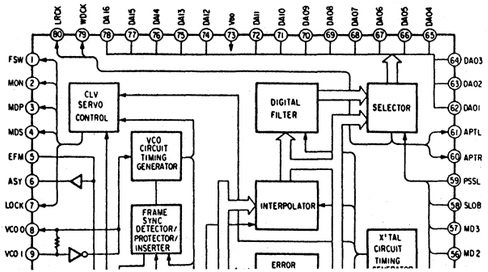
IC701 CXA1081Q



IC702 CXA1182Q-Z



IC703 CXD1130Q



[CD CONTROL BOARD]

S809 REMAIN
S808 REPEAT 1/ALL SHUFFLE
S807 ⏸
S806 ⏭
S805 ⏮
S804 ■
S803 ▶

CN710 — W710

<REM>
<P-MODE>
<PAUSE>
<K-FF>
<K-RF>
<K-STOP>
<K-PB>

S801 OPEN/CLOSE (ON : THE DISC HOLDER IS SHUT.)

[CD MAIN BOARD]

IC804 PST529E SYSTEM RESET

RESET — 5.2 — 4.9

C801 33µ 16V

LCD1 LIQUID CRYSTAL DISPLAY PANEL
COM0 COM1 CON2 CON3 SEG0 SEG1 SEG2 SEG3 SEG4 SEG5 SEG6 SEG7 SEG8 SEG9 SEG10 SEG11 SEG12 SEG13 SEG14

R801 33k
R802 33k
R803 33k
C802 0.01µ
C803 68p
C804 68p
X801 3.58MHz
R807 100k
R821 100k
Q801 2SA1346 SWITCH

IC801 CXP5024-083Q SYSTEM CONTROL

28nSEC — 5.5V — 0V

COM3 S0 S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14
COM2 CON1 CON0 VLC1 VLC2 VLC3 VDD VL XTAL EXTAL RST WP REMOTE
DIRC LATCH GFS SCOR SOCK DATA SENSE SUBQ K-PB K-STOP K-FF K-FF PAUSE P-MODE REM S-DOOR CB REC

TEST
BW P-CON RESET MUTE PENP VDD GND TEST FOK BTL MUTE

S801 OFF : 5.1 ON : 0 (OPEN)
5.1 REC : 0
4.8 CD : 0

R809 47k
R736 10k
Q711 2SC3400 PEN EMPHASIS DRIVE

D801 1SS133
D802 1SS133
R805 47k
R806 47k
R794 100

PLAY: 1.2Vp-p

R702 1k
C702 33µ 16V
RF

IC701 CXA1081Q CD RF AMP

P/N RF RFO RF VCC LBON FOK
LØ PØ PD1 (A+C) PD2 (B+D) VC F E EO
EFM ASY GND CB CP MIRR DFCT TE
EI VR DL CC2 CC1 VEE F-BIAS FE

C701 0.0022
C709 0.01µ
C708 0.033µ
C710 33 16V
C705 220 6.3V
C761 0.47µ
C706 0.033µ
C707 33µ 3.15V
C743 0.0047µ
C739 0.01µ
L701 1µH
R734 1k

RV701 20k B — E-F BALANCE
R703 22k
RV702 50k B — FOCUS BIAS

Q802 2SC3901 BTL MUTE DRIVE
Q803 2SC1740S SWITCH
R808 100k

<LBON> <FOK> <EFM> <ASY> <GND> <MIRR> <DFCT> <TE> <VREF> <FE>
TRK

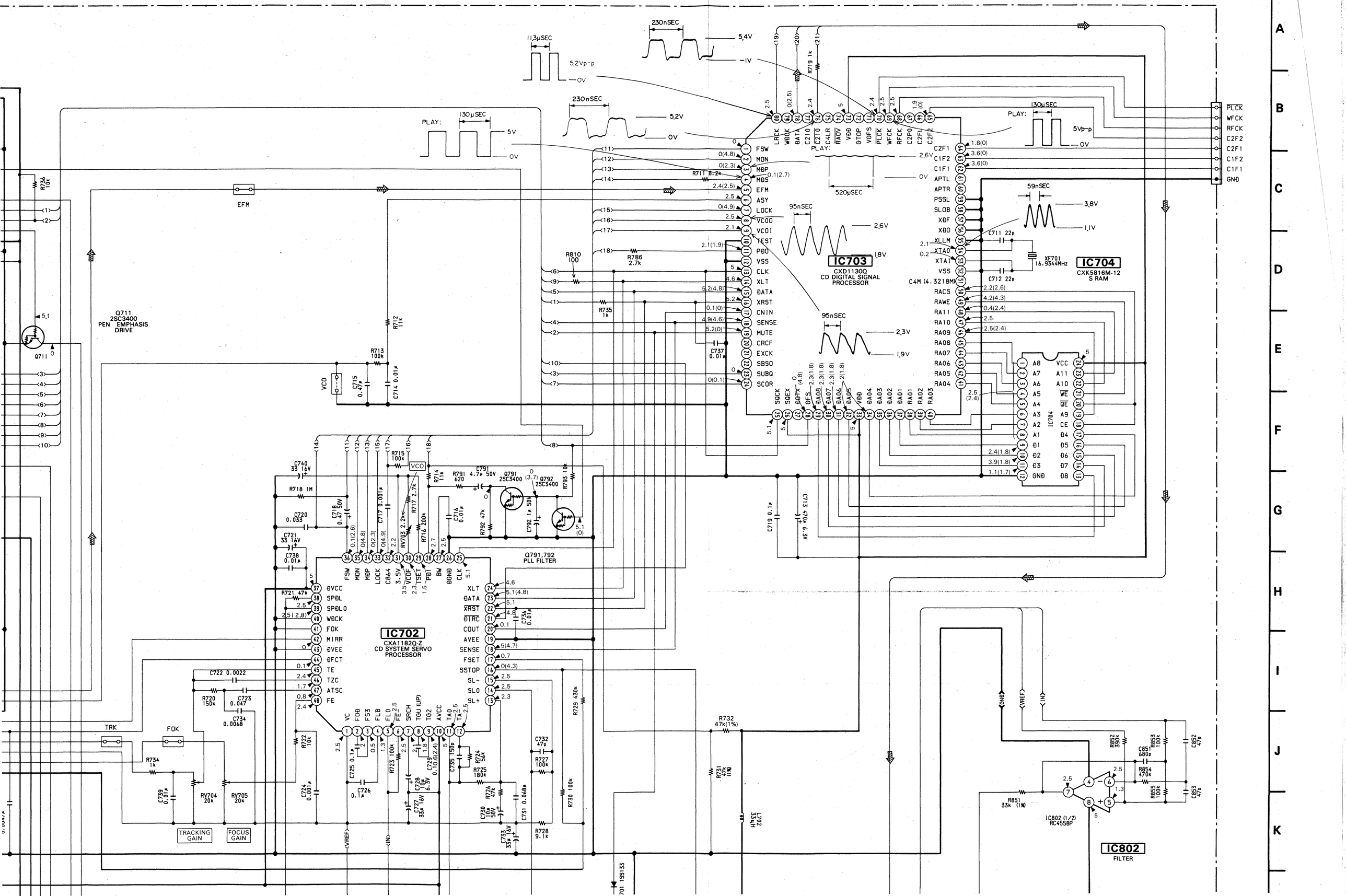
OPTICAL PICK-UP BLOCK (KSS-210B)

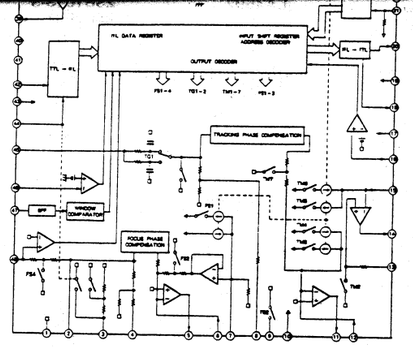
W701 — CN709 — W702 — CN708

TRACKING COIL
FOCUS COIL

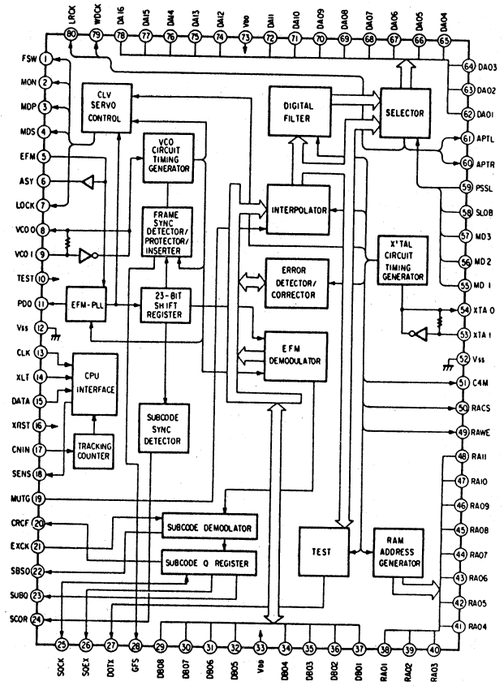
<FCS+> <TRK-> <TRK+> <FCS-> <VR> <PD> <GND> <LD>

R705 91

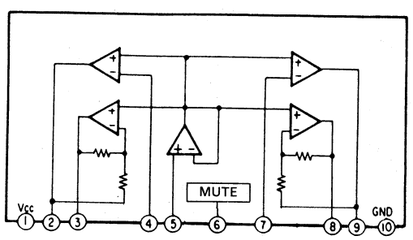

IC703
CXD1130Q
CD DIGITAL SIGNAL PROCESSOR
IC704
CXK5816M-12
S RAM
IC702
CXA1182Q-Z
CD SYSTEM SERVO PROCESSOR
IC802
FILTER
Q711
2SC3400
PEN EMPHASIS DRIVE
Q791,792
PLL FILTER
EFM
TRK
FOK
VCO
TRACKING GAIN
FOCUS GAIN
PLAY:
230nSEC
113µSEC
130µSEC
95nSEC
59nSEC
520µSEC
5.2Vp-p
5Vp-p
5.4V
-1V
5.2V
0V
5V
2.6V
1.8V
2.3V
1.9V
3.8V
1.1V
XF701
16.9344MHz
C4M (4.3218MHz)
1SS133
RC4558P
PLCK
WFCK
RFCK
C2F2
C2F1
C1F2
C1F1
GND



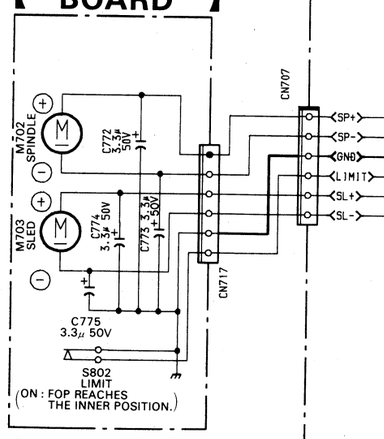
IC703
CXD1130Q

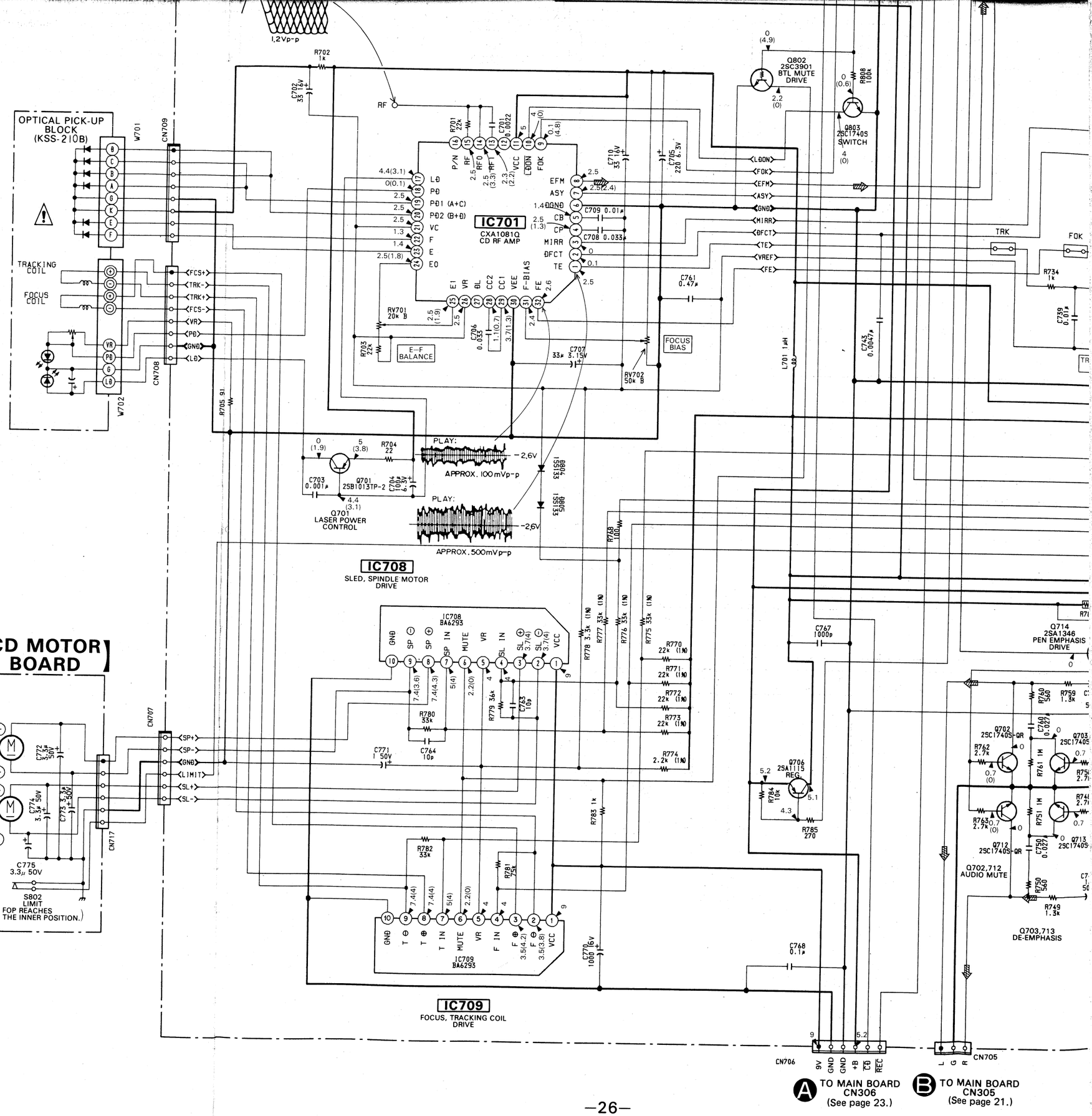


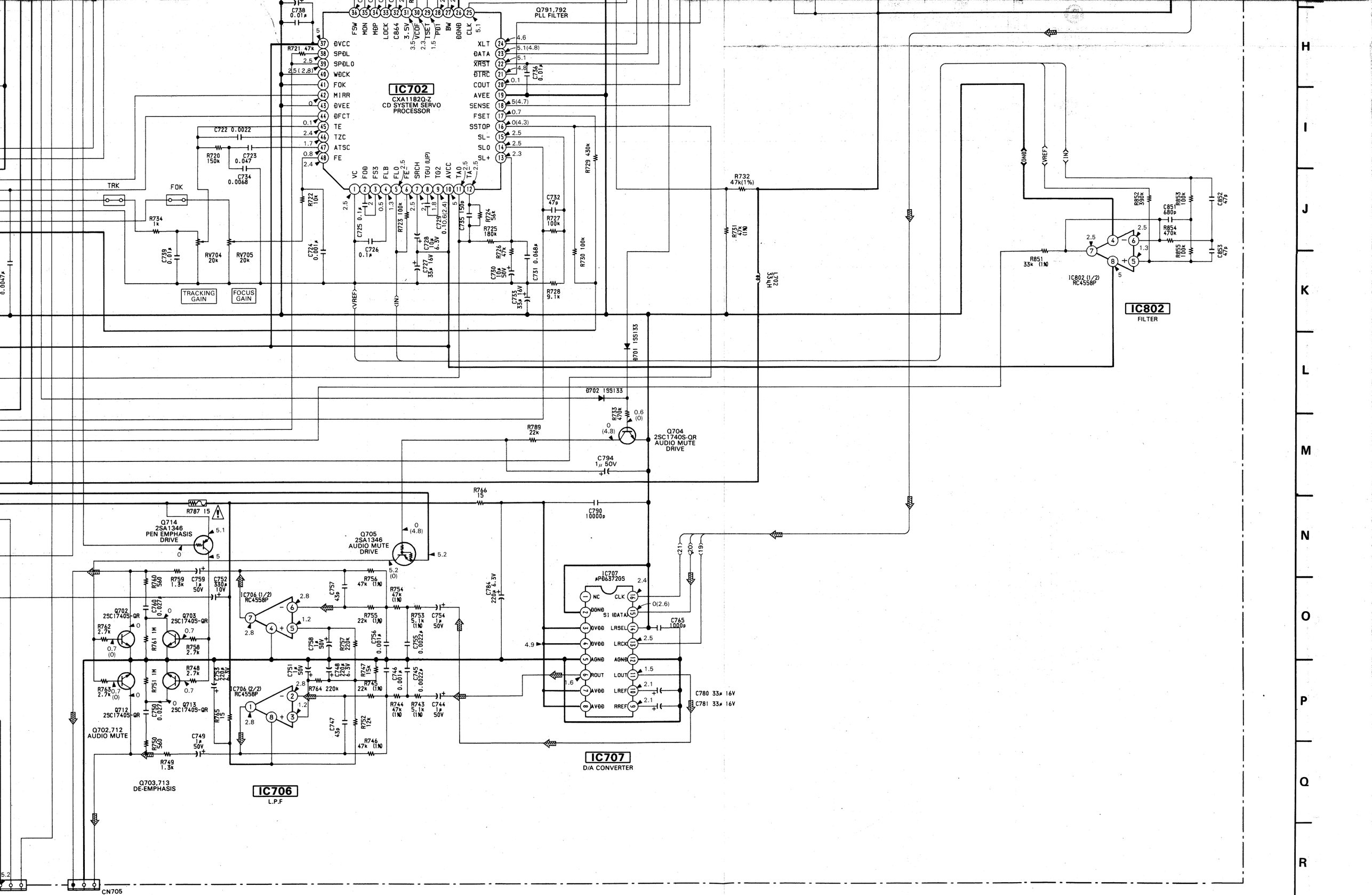
IC708, 709
BA6293



[CD MOTOR BOARD]





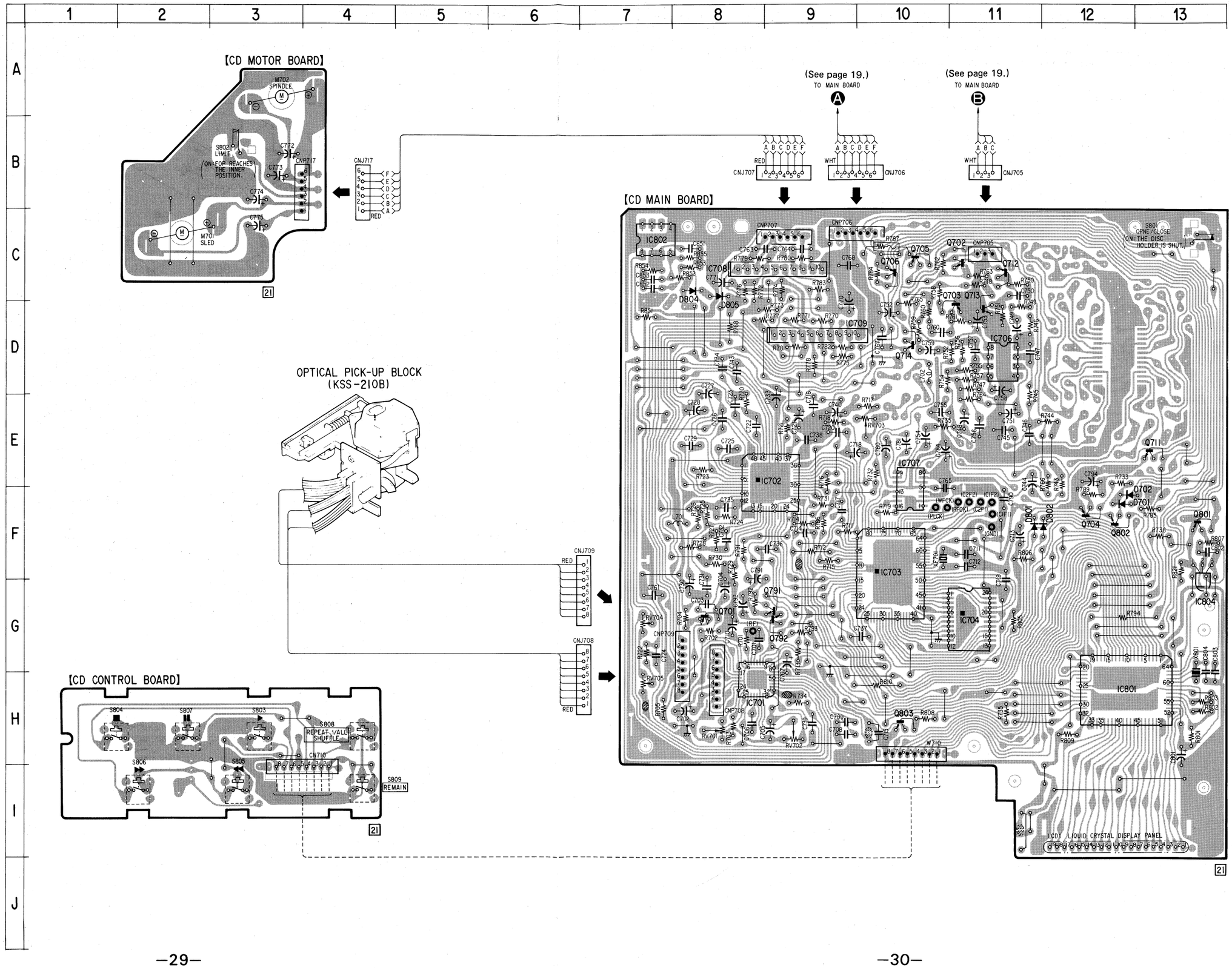

IC702
CXA1182Q-Z
CD SYSTEM SERVO
PROCESSOR
Q791,792
PLL FILTER
FSW
MON
MDP
LOCK
C864
3.5V
VCOF
TSET
PDI
BW
DGND
CLK
DVCC
SPDL
SPDLO
WDCK
FOK
MIRR
DVEE
DFCT
TE
TZC
ATSC
FE
XLT
DATA
XRST
DTRC
COUT
AVEE
SENSE
FSET
SSTOP
SL-
SLO
SL+
VC
FOB
FS3
FLB
FLO
FE
SRCH
TGU (UP)
TG2
AVCC
TAO
TA
TRK
FOK
TRACKING GAIN
FOCUS GAIN
R732 47k(1%)
L702 33uH
IC802
FILTER
IC802 (1/2) RC4558P
R851 33k (1%)
R852 33k
R853 100k
R854 470k
R855 100k
C851 680p
C852 47p
C853 47p
D701 1SS133
D702 1SS133
Q704 2SC1740S-QR AUDIO MUTE DRIVE
C794 1μ 50V
R789 22k
R766 15
C790 10000p
R787 15
Q714 2SA1346 PEN EMPHASIS DRIVE
Q705 2SA1346 AUDIO MUTE DRIVE
IC707 #PD6372GS
NC
CLK
DGND
SI (DATA)
DVDD
LRSEL
DVDD
LRCK
AGND
AGND
ROUT
LOUT
AVDD
LREF
AVDD
RREF
C765 1000p
C780 33μ 16V
C781 33μ 16V
IC707
D/A CONVERTER
IC706 (1/2) RC4558P
IC706 (2/2) RC4558P
IC706
L.P.F
Q702,712 AUDIO MUTE
Q703,713 DE-EMPHASIS
Q702 2SC1740S-QR
Q703 2SC1740S-QR
Q712 2SC1740S-QR
Q713 2SC1740S-QR
CN705
L G R
TO MAIN BOARD CN305 (See page 21.)
IN BOARD N306 page 23.)

6-6. CD SECTION PRINTED WIRING BOARDS

• See Page 24 for Semiconductor Lead Layouts.

• Semiconductor Location

Ref. No.	Location
D701	F-12
D702	F-12
D801	F-11
D802	F-12
D804	C-8
D805	C-8
IC701	H-8
IC702	E-9
IC703	F-10
IC704	G-11
IC706	D-11
IC707	E-10
IC708	C-8
IC709	D-9
IC801	H-12
IC802	C-7
IC804	F-13
Q701	G-8
Q702	C-11
Q703	D-11
Q704	F-12
Q705	C-10
Q706	C-10
Q711	E-13
Q712	C-11
Q713	D-11
Q714	D-10
Q791	G-9
Q792	G-9
Q801	F-13
Q802	F-12
Q803	H-10



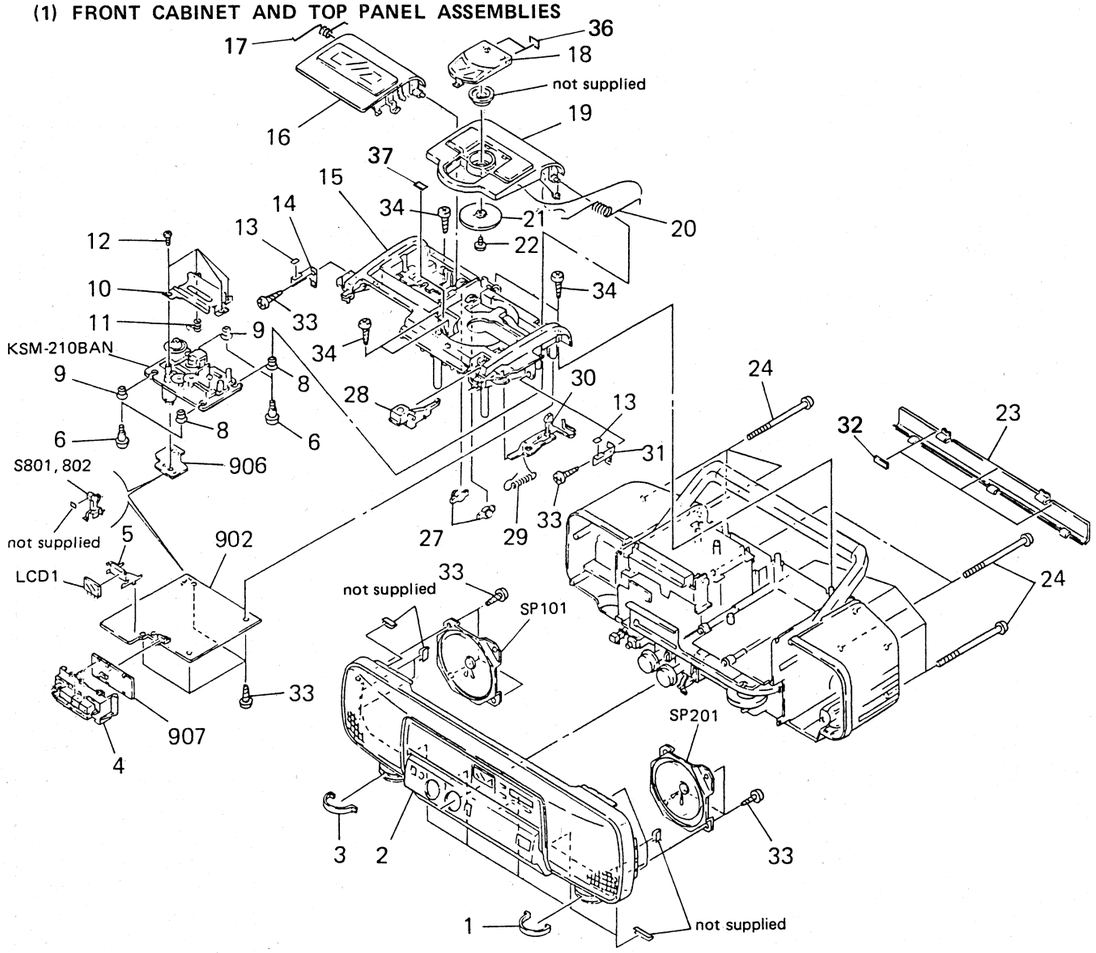
SECTION 7
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ Cabinet's Color ↑ Parts' Color

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

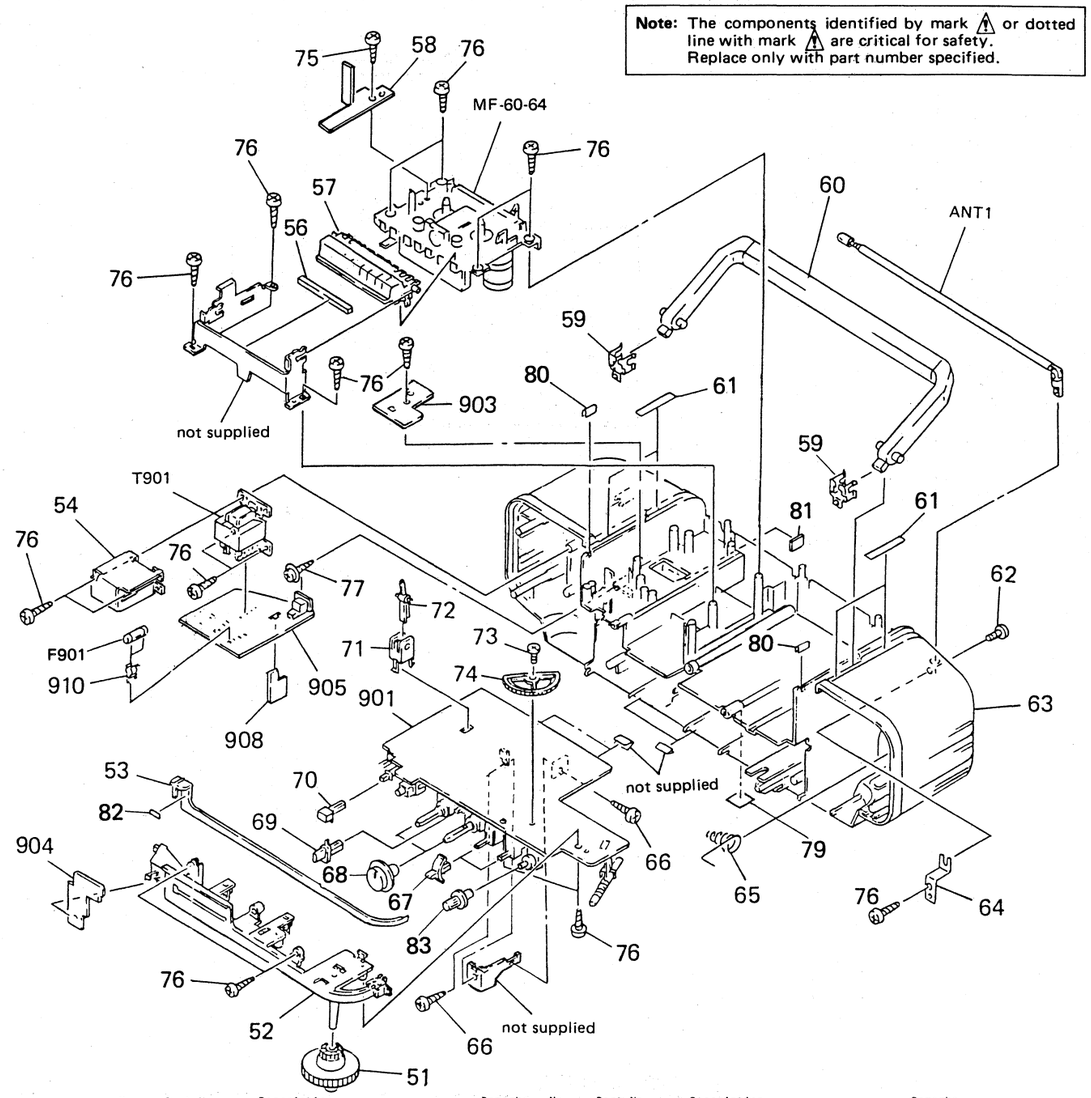
(1) FRONT CABINET AND TOP PANEL ASSEMBLIES



No.	Part No.	Description	Remarks
1	4-931-331-01	FOOT (RIGHT), ORNAMENTAL	
2	X-4919-965-1	(Italian).....CABINET (FRONT) ASSY	
	X-4919-968-1	(AEP,UK).....CABINET (FRONT) ASSY	
	X-4919-969-1	(West Germany)...CABINET (FRONT) ASSY	
3	4-931-330-01	FOOT (LEFT), ORNAMENTAL	
4	4-931-305-01	BUTTON, CD	
5	*4-931-332-01	BRACKET, LCD	
6	4-931-373-01	SCREW, CD FITTING	
8	4-922-858-01	DAMPER	
9	4-922-858-11	DAMPER	
10	*4-928-936-01	COVER, CD	
11	4-931-358-01	SPRING	
12	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT	
13	3-647-028-01	CUSHION, RUBBER	
14	4-931-371-01	PLATE, REINFORCEMENT (L)	
15	4-931-346-31	CABINET (UPPER)	
16	X-4921-241-1	LID (O.W) ASSY, CASSETTE	
17	4-931-390-01	SPRING (45)	
18	4-931-313-01	WINDOW, CD	
19	X-4919-960-1	LID ASSY, CD	
20	4-931-335-01	SPRING (CD)	
21	3-704-435-01	PLATE (M), CHUCK	
22	7-621-772-00	SCREW +B 2X3	
23	4-931-307-01	LID, BATTERY CASE	
24	4-918-246-01	SCREW (3X70), + BVTP	
27	3-319-224-31	DAMPER, SMALL	
28	4-931-311-01	BUTTON (CD), EJECT	
29	3-543-985-11	SPRING, TENSION	
30	4-931-312-01	LEVER (CD), EJECT	
31	4-931-372-01	PLATE, REINFORCEMENT (R)	
32	4-931-375-01	SPACER (M)	
33	7-685-648-79	SCREW, TAPPING +BV 3X12	
34	3-325-679-71	SCREW, TAPPING +BV 3X12	
36	*4-931-379-01	SPACER (Y)	
37	4-931-377-01	SPACER (S)	
902	*A-3260-940-A	MOUNTED PCB, MAIN, CD	
906	*1-630-625-11	PC BOARD, CD MOTOR	
907	*1-630-626-11	PC BOARD, CD CONTROL	
LCD1	1-808-726-11	DISPLAY PANEL, LIQUID CRYSTAL	
S801	1-571-936-11	SWITCH, LEAF (OPEN/CLOSE)	
S802	1-571-936-11	SWITCH, LEAF (LIMIT)	
SP101	1-544-148-21	SPEAKER	
SP201	1-544-148-21	SPEAKER	

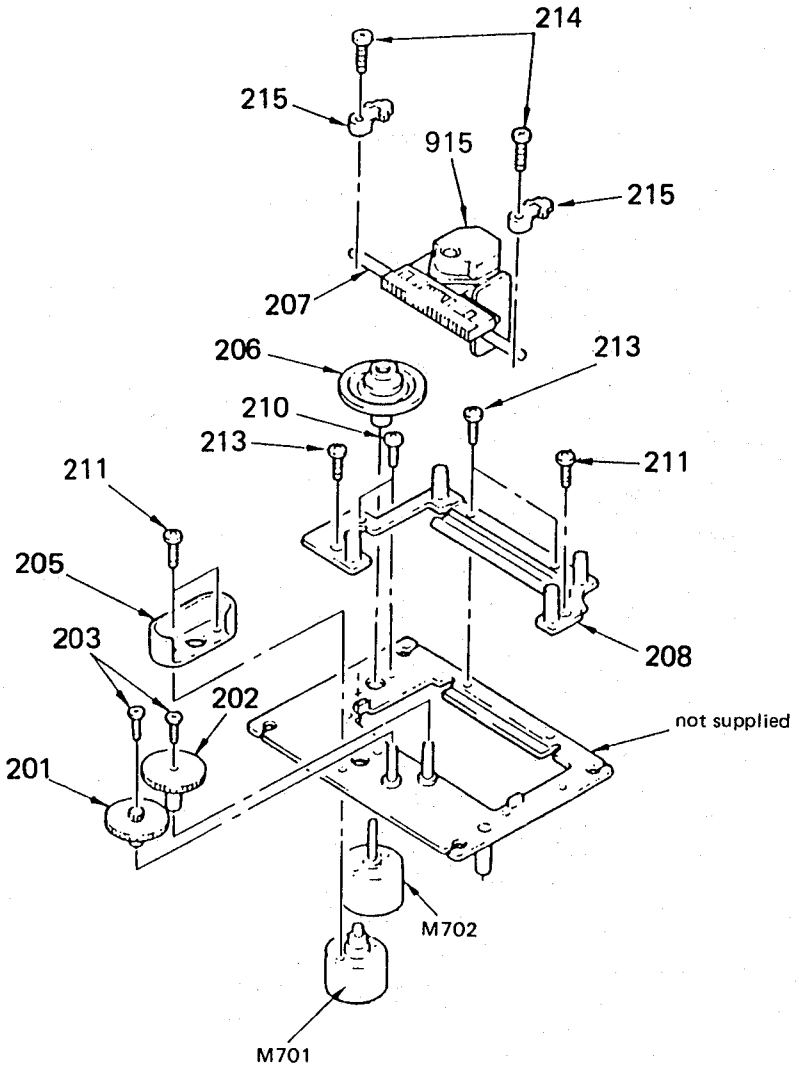
(2) REAR CABINET ASSEMBLY

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.



No.	Part No.	Description	Remarks
51	4-931-314-01	KNOB (TUNING)	
52	*4-931-347-01	CHASSIS (TU)	
53	4-931-318-01	RACK, POINTER	
54	*4-931-384-01	PLATE, SHIELD, TRANSFORMER	
56	4-931-370-11	CUSHION (P)	
57	X-4921-239-1	BUTTON (M) ASSY	
58	4-931-349-01	SPRING	
59	*4-931-342-01	BRACKET, HANDLE	
60	4-931-306-01	HANDLE	
61	4-359-697-01	CUSHION (F)	
62	7-682-548-04	SCREW +B 3X8	
63	4-931-344-41	CABINET (REAR)	
64	*4-931-340-01	TERMINAL BOARD, ANTENNA	
65	4-931-339-01	SPRING	
66	7-685-646-79	SCREW +BVTP 3X8 TYPE2	
67	3-323-803-11	KNOB, BAND SELECTION	
68	4-931-315-01	KNOB (VOLUME)	
69	4-931-310-01	KNOB (BASS)	
70	4-931-316-01	KNOB (POWER)	
71	*4-931-320-01	BRACKET (REC)	
72	4-931-319-01	LEVER (REC)	
73	7-621-770-67	SCREW +B 2.6X6	
74	*4-931-322-01	GEAR, VC	
75	7-685-134-19	SCREW +P 2.6X8 TYPE2 NON-SLIT	
76	7-685-648-79	SCREW, TAPPING +BV 3X12	
77	7-685-647-79	SCREW (+ PTP DIA.12 WH 3)	
79	*4-931-395-01	(Italian).....LABEL, MODEL NUMBER	
	*4-931-364-01	(AEP).....LABEL, MODEL NUMBER	
	*4-931-366-01	(West Germany)...LABEL, MODEL NUMBER	
	*4-931-367-01	(UK).....LABEL, MODEL NUMBER	
80	4-931-375-01	SPACER (M)	
81	4-931-376-01	SPACER (N)	
82	*4-931-379-01	SPACER (Y)	
83	4-931-374-01	KNOB (FINE TUNING)	
901	*A-3260-987-A	(West Germany)...MOUNTED PCB, MAIN	
	*A-3260-988-A	(AEP,UK).....MOUNTED PCB, MAIN	
	*A-3260-994-A	(Italian).....MOUNTED PCB, MAIN	
903	*1-630-913-31	PC BOARD, TRANSLATION	
904	*1-630-473-31	PC BOARD, LED	
905	*1-630-475-31	PC BOARD, POWER	
908	*1-630-629-31	PC BOARD, BATTERY TERMINAL	
910	1-533-217-31	HOLDER, FUSE	
ANT1	1-501-378-11	ANTENNA, TELESCOPIC	
F901	⚠1-532-237-00	FUSE, TIME-LAG T3.15A 250V	
T901	⚠1-449-773-11	(AEP,West Germany,Italian) ...TRANSFORMER, POWER	
T901	⚠1-449-774-11	(UK).....TRANSFORMER, POWER	

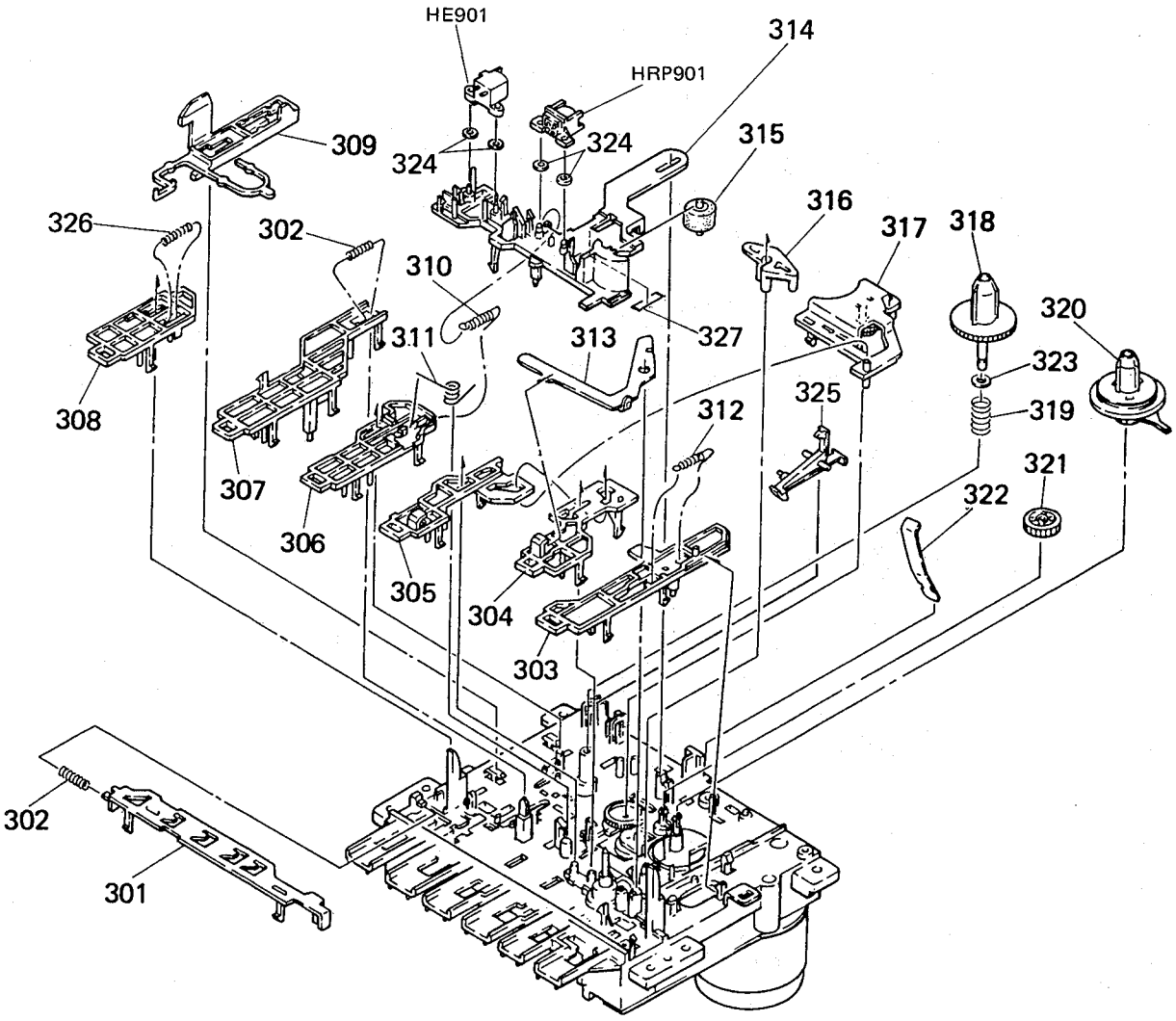
(3) OPTICAL PICK-UP BLOCK (KSM-210BAN)



No.	Part No.	Description	Remarks
201	2-641-403-05	GEAR (B)	
202	2-641-404-02	GEAR (A)	
203	3-303-809-31	SCREW (M1.7X3.0), SPECIAL HEAD	
205	*2-641-434-01	COVER, GEAR	
206	X-2640-771-1	TURNTABLE ASSY	
207	*4-910-431-01	SHAFT, SLIDE	
208	2-641-444-01	HOLDER (J), CHASSIS	
210	7-621-255-15	SCREW +P 2X3	
211	7-621-255-25	SCREW +P 2X4	
213	7-621-255-45	SCREW +PTT 2X6 (S)	
214	2-641-447-01	SCREW (2.6X8), + STP	
215	2-641-448-02	CLAMP, SHAFT	
915	⚠8-848-137-11	DEVICE, OPTICAL KSS-210B	
M701	X-2640-770-1	MOTOR ASSY, SLED (WITH GEAR)	
M702	1-541-352-11	MOTOR (SPINDLE)	

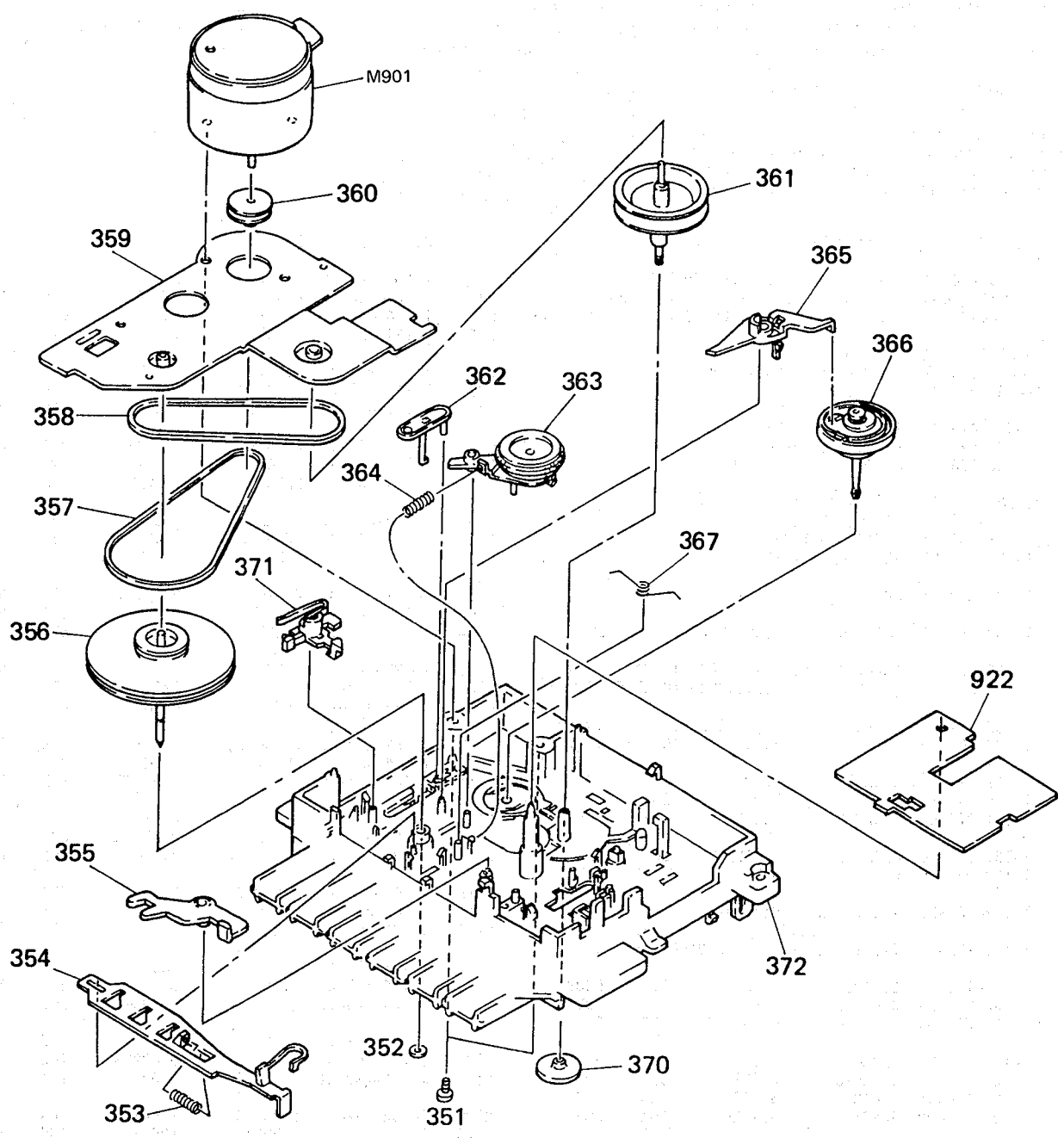
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

(4) TAPE TRANSPORT MECHANISM-1 (MF-60-64)



No.	Part No.	Description	Remarks
301	4-928-995-01	SLIDER, LOCK	
302	3-343-346-01	SPRING, COMPRESSION	
303	4-928-994-01	LEVER, PAUSE	
304	4-928-993-01	LEVER, FF	
305	4-928-992-01	LEVER, REW	
306	4-928-991-01	LEVER, PLAY	
307	4-921-195-01	LEVER (AC), REC	
308	4-928-985-01	LEVER, STOP	
309	4-928-983-01	SLIDER, EJECT	
310	4-928-972-01	SPRING, TENSION	
311	4-928-973-01	SPRING	
312	3-313-372-01	SPRING, TENSION	
313	*4-928-984-01	LEVER (D)	
314	4-921-196-01	DECK (AC), HEAD	
315	4-928-962-01	PINCH ROLLER	
316	4-928-982-01	LEVER (C)	
317	X-4918-584-1	LEVER ASSY, FR	
318	4-928-978-01	GEAR (C), SUPPLY REEL	
319	3-343-381-01	SPRING, COMPRESSION	
320	X-4918-585-1	GEAR (C) ASSY, TAKE-UP REEL	
321	3-343-285-01	GEAR, FF	
322	4-928-957-01	RETAINER, CASSETTE	
323	4-931-795-11	WASHER	
324	3-701-438-01	WASHER	
325	4-928-960-01	CLAW, SAFETY	
326	4-930-433-01	SPRING, COMPRESSION	
327	*4-932-612-01	SHEET, HD	
HE901	1-543-535-11	HEAD, MAGNETIC (ERASE)	
HRP901	1-543-628-11	HEAD, MAGNETIC (REC/PB)	

(5) TAPE TRANSPORT MECHANISM-2 (MF-60-64)



No.	Part No.	Description	Remarks
351	7-621-775-20	SCREW +B 2.6X5	
352	3-343-358-01	RING, RETAINING	
353	4-931-746-01	SPRING, COMPRESSION	
354	4-928-996-01	LEVER, SW	
355	4-928-981-01	LEVER, FR SW	
356	X-4918-576-1	WHEEL (C) ASSY, CAPSTAN	
357	4-928-951-01	BELT (CAPSTAN)	
358	4-928-974-01	BELT (MIDWAY)	
359	*X-4918-598-1	PLATE ASSY, GROUND	
360	X-3313-308-1	PULLEY (P), MOTOR	
361	X-4918-580-1	PULLEY ASSY, FR	
362	4-928-961-01	PLATE, PAUSE LOCK	
363	X-4918-583-1	LEVER ASSY, IDLER	
364	4-932-655-01	SPRING, COMPRESSION	
365	4-928-986-01	LEVER (S), SHUT-OFF	
366	X-4918-582-1	PLATE ASSY, TAKE-UP REEL	
367	4-928-958-01	SPRING, FR RETURN	
370	4-928-967-01	GEAR (C), MIDWAY	
371	4-928-987-01	LEVER (T), SHUT-OFF	
372	*X-4918-579-1	CHASSIS ASSY, MECHANICAL	
922	*1-630-864-21	PC BOARD, SW	
M901	1-541-625-11	MOTOR, DC	

SECTION 8
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description
901	*A-3260-987-A	(West Germany)...MOUNTED PCB, MAIN
	*A-3260-988-A	(AEP,UK).....MOUNTED PCB, MAIN
	*A-3260-994-A	(Italian).....MOUNTED PCB, MAIN
902	*A-3260-940-A	MOUNTED PCB, MAIN, CD
903	*1-630-913-31	PC BOARD, TRANSLATION
904	*1-630-473-31	PC BOARD, LED
905	*1-630-475-31	PC BOARD, POWER
906	*1-630-625-11	PC BOARD, CD MOTOR
907	*1-630-626-11	PC BOARD, CD CONTROL
908	*1-630-629-31	PC BOARD, BATTERY TERMINAL
910	1-533-217-31	HOLDER, FUSE
915	⚠8-848-137-11	DEVICE, OPTICAL KSS-210B
922	*1-630-864-21	PC BOARD, SWITCH
ANT1	1-501-378-11	ANTENNA, TELESCOPIC
C1	1-162-294-31	CERAMIC 0.001MF 10% 50V
C2	1-162-208-31	(AEP,UK,Italian)...CERAMIC 24PF 5% 50V
C2	1-162-209-31	(West Germany).....CERAMIC 27PF 5% 50V
C3	1-102-961-00	(AEP,UK,Italian)...CERAMIC 27PF 5% 50V
C3	1-102-962-00	(West Germany).....CERAMIC 30PF 5% 50V
C4	1-162-192-31	CERAMIC 2.7PF 10% 50V
C5	1-124-963-11	ELECT 33MF 20% 16V
C6	1-161-379-00	CERAMIC 0.01MF 30% 16V
C7	1-161-379-00	CERAMIC 0.01MF 30% 16V
C8	1-102-945-00	CERAMIC 8PF 0.5PF 50V
C9	1-162-207-31	(AEP,UK,West Germany) ...CERAMIC 22PF 5% 50V
C9	1-162-208-31	(Italian)...CERAMIC 24PF 5% 50V
C10	1-102-109-00	CERAMIC 180PF 5% 500V
C11	1-102-953-00	CERAMIC 18PF 5% 50V
C12	1-161-047-00	CERAMIC 0.0047MF 10% 25V
C13	1-102-113-00	CERAMIC 390PF 5% 50V
C14	1-102-111-00	CERAMIC 270PF 5% 500V
C15	1-162-194-31	CERAMIC 3.9PF 10% 50V
C16	1-124-465-00	ELECT 0.47MF 20% 50V
C17	1-162-191-31	(AEP,UK,West Germany) ...CERAMIC 2.2PF 10% 50V
C17	1-162-193-31	(Italian)...CERAMIC 3.3PF 10% 50V
C18	1-162-216-31	CERAMIC 51PF 5% 50V
C19	1-124-446-11	ELECT 47MF 20% 10V
C20	1-124-925-11	ELECT 2.2MF 20% 50V
C21	1-124-446-11	ELECT 47MF 20% 10V
C22	1-161-379-00	CERAMIC 0.01MF 30% 16V
C23	1-161-379-00	CERAMIC 0.01MF 30% 16V

Ref.No.	Part No.	Description			
C24	1-124-499-11	ELECT	1MF	20%	50V
C25	1-124-927-11	ELECT	4.7MF	20%	50V
C26	1-124-499-11	ELECT	1MF	20%	50V
C27	1-124-927-11	ELECT	4.7MF	20%	50V
C28	1-124-902-00	ELECT	0.47MF	20%	50V
C29	1-126-101-11	ELECT	100MF	20%	16V
C30	1-161-051-00	CERAMIC	0.01MF	10%	25V
C31	1-161-051-00	CERAMIC	0.01MF	10%	25V
C32	1-124-902-00	ELECT	0.47MF	20%	50V
C33	1-124-902-00	ELECT	0.47MF	20%	50V
C34	1-162-282-31	CERAMIC	100PF	10%	50V
C35	1-162-194-31	CERAMIC	3.9PF	10%	50V
C36	1-162-190-31	CERAMIC	1.8PF	20%	50V
C101	1-162-294-31	CERAMIC	0.001MF	10%	50V
C102	1-124-927-11	ELECT	4.7MF	20%	50V
C104	1-124-963-11	ELECT	33MF	20%	16V
C105	1-123-875-11	ELECT	10MF	20%	50V
C106	1-124-499-11	ELECT	1MF	20%	50V
C108	1-124-927-11	ELECT	4.7MF	20%	50V
C109	1-162-282-31	CERAMIC	100PF	10%	50V
C110	1-124-927-11	ELECT	4.7MF	20%	50V
C111	1-161-057-00	CERAMIC	0.033MF	10%	25V
C112	1-136-165-00	FILM	0.1MF	5%	50V
C113	1-161-377-00	CERAMIC	0.0047MF	30%	16V
C114	1-124-927-11	ELECT	4.7MF	20%	50V
C115	1-161-374-11	CERAMIC	0.0015MF	30%	16V
C116	1-162-282-31	CERAMIC	100PF	10%	50V
C117	1-126-101-11	ELECT	100MF	20%	16V
C118	1-126-101-11	ELECT	100MF	20%	16V
C119	1-136-165-00	FILM	0.1MF	5%	50V
C120	1-124-473-11	ELECT	1000MF	20%	10V
C121	1-124-927-11	ELECT	4.7MF	20%	50V
C123	1-161-043-00	CERAMIC	0.0022MF	10%	25V
C124	1-162-282-31	CERAMIC	100PF	10%	50V
C125	1-162-282-31	CERAMIC	100PF	10%	50V
C126	1-162-282-31	CERAMIC	100PF	10%	50V
C129	1-162-292-31	CERAMIC	680PF	10%	50V
C135	1-162-282-31	CERAMIC	100PF	10%	50V
C136	1-161-329-00	CERAMIC	0.0068MF	30%	16V
C201	1-162-294-31	CERAMIC	0.001MF	10%	50V
C202	1-124-927-11	ELECT	4.7MF	20%	50V
C204	1-124-963-11	ELECT	33MF	20%	16V
C205	1-123-875-11	ELECT	10MF	20%	50V
C206	1-124-499-11	ELECT	1MF	20%	50V
C208	1-124-927-11	ELECT	4.7MF	20%	50V
C209	1-162-282-31	CERAMIC	100PF	10%	50V

Ref.No.	Part No.	Description			
C210	1-124-927-11	ELECT	4.7MF	20%	50V
C211	1-161-057-00	CERAMIC	0.033MF	10%	25V
C212	1-136-165-00	FILM	0.1MF	5%	50V
C213	1-161-377-00	CERAMIC	0.0047MF	30%	16V
C214	1-124-927-11	ELECT	4.7MF	20%	50V
C215	1-161-374-11	CERAMIC	0.0015MF	30%	16V
C216	1-162-282-31	CERAMIC	100PF	10%	50V
C217	1-126-101-11	ELECT	100MF	20%	16V
C218	1-126-101-11	ELECT	100MF	20%	16V
C219	1-136-165-00	FILM	0.1MF	5%	50V
C220	1-124-473-11	ELECT	1000MF	20%	10V
C221	1-124-927-11	ELECT	4.7MF	20%	50V
C223	1-161-043-00	CERAMIC	0.0022MF	10%	25V
C224	1-162-282-31	CERAMIC	100PF	10%	50V
C225	1-162-282-31	CERAMIC	100PF	10%	50V
C226	1-162-282-31	CERAMIC	100PF	10%	50V
C229	1-162-292-31	CERAMIC	680PF	10%	50V
C235	1-162-282-31	CERAMIC	100PF	10%	50V
C236	1-161-329-00	CERAMIC	0.0068MF	30%	16V
C301	1-162-282-31	CERAMIC	100PF	10%	50V
C302	1-124-927-11	ELECT	4.7MF	20%	50V
C303	1-162-282-31	CERAMIC	100PF	10%	50V
C304	1-162-282-31	CERAMIC	100PF	10%	50V
C305	1-124-927-11	ELECT	4.7MF	20%	50V
C306	1-124-442-00	ELECT	330MF	20%	6.3V
C307	1-136-169-00	FILM	0.22MF	5%	50V
C309	1-123-382-00	ELECT	3.3MF	20%	50V
C310	1-126-233-11	ELECT	22MF	20%	25V
C311	1-124-120-11	ELECT	220MF	20%	16V
C312	1-161-379-00	CERAMIC	0.01MF	30%	16V
C313	1-123-875-11	ELECT	10MF	20%	50V
C314	1-123-875-11	ELECT	10MF	20%	50V
C315	1-161-379-00	CERAMIC	0.01MF	30%	16V
C316	1-161-329-00	CERAMIC	0.0068MF	30%	16V
C317	1-124-446-11	ELECT	47MF	20%	10V
C318	1-161-379-00	CERAMIC	0.01MF	30%	16V
C319	1-130-479-00	MYLAR	0.0047MF	10%	50V
C320	1-136-154-00	MYLAR	0.012MF	10%	50V
C321	1-130-475-00	MYLAR	0.0022MF	10%	50V
C322	1-130-471-00	MYLAR	0.001MF	10%	50V
C323	1-124-927-11	ELECT	4.7MF	20%	50V
C324	1-124-120-11	ELECT	220MF	20%	16V
C325	1-123-875-11	ELECT	10MF	20%	50V
C326	1-126-101-11	ELECT	100MF	20%	16V
C327	1-161-379-00	CERAMIC	0.01MF	30%	16V
C328	1-124-473-11	ELECT	1000MF	20%	10V
C329	1-124-473-11	ELECT	1000MF	20%	10V
C330	1-124-925-11	ELECT	2.2MF	20%	50V
C331	1-161-379-00	CERAMIC	0.01MF	30%	16V
C332	1-161-379-00	CERAMIC	0.01MF	30%	16V
C334	1-161-379-00	CERAMIC	0.01MF	30%	16V
C335	1-124-120-11	ELECT	220MF	20%	16V
C339	1-124-927-11	ELECT	4.7MF	20%	50V
C340	1-162-282-31	CERAMIC	100PF	10%	50V
C341	1-162-294-31	CERAMIC	0.001MF	10%	50V
C344	1-161-379-00	CERAMIC	0.01MF	30%	16V
C346	1-161-379-00	CERAMIC	0.01MF	30%	16V
C352	1-161-377-00	CERAMIC	0.0047MF	30%	16V

Ref.No.	Part No.	Description			
C359	1-126-017-11	ELECT	6800MF	20%	16V
C360	1-162-294-31	CERAMIC	0.001MF	10%	50V
C361	1-162-294-31	CERAMIC	0.001MF	10%	50V
C362	1-126-101-11	ELECT	100MF	20%	16V
C701	1-130-475-00	MYLAR	0.0022MF	5%	50V
C702	1-124-963-11	ELECT	33MF	20%	16V
C703	1-162-294-31	CERAMIC	0.001MF	10%	50V
C704	1-124-443-00	ELECT	100MF	20%	6.3V
C705	1-126-176-11	ELECT	220MF	20%	6.3V
C706	1-130-489-00	MYLAR	0.033MF	5%	50V
C707	1-131-386-00	TANTALUM	33MF	10%	3.15V
C708	1-130-489-00	MYLAR	0.033MF	5%	50V
C709	1-130-483-00	MYLAR	0.01MF	5%	50V
C710	1-124-963-11	ELECT	33MF	20%	16V
C711	1-162-207-31	CERAMIC	22PF	5%	50V
C712	1-162-207-31	CERAMIC	22PF	5%	50V
C713	1-124-472-11	ELECT	470MF	20%	6.3V
C714	1-161-379-00	CERAMIC	0.01MF	30%	16V
C715	1-136-173-00	FILM	0.47MF	5%	50V
C716	1-130-483-00	MYLAR	0.01MF	5%	50V
C717	1-162-294-31	CERAMIC	0.001MF	10%	50V
C718	1-124-902-00	ELECT	0.47MF	20%	50V
C719	1-162-851-11	CERAMIC	0.1MF		16V
C720	1-130-489-00	MYLAR	0.033MF	5%	50V
C721	1-124-963-11	ELECT	33MF	20%	16V
C722	1-130-475-00	MYLAR	0.0022MF	5%	50V
C723	1-161-021-11	CERAMIC	0.047MF	10%	25V
C724	1-162-294-31	CERAMIC	0.001MF	10%	50V
C725	1-136-165-00	FILM	0.1MF	5%	50V
C726	1-136-165-00	FILM	0.1MF	5%	50V
C727	1-124-963-11	ELECT	33MF	20%	16V
C728	1-131-377-00	TANTALUM	10MF	10%	6.3V
C729	1-136-165-00	FILM	0.1MF	5%	50V
C730	1-123-875-11	ELECT	10MF	20%	50V
C731	1-161-061-11	CERAMIC	0.068MF	10%	25V
C732	1-162-215-31	CERAMIC	47PF	5%	50V
C733	1-124-963-11	ELECT	33MF	20%	16V
C734	1-130-481-00	MYLAR	0.0068MF	5%	50V
C735	1-162-284-31	CERAMIC	150PF	10%	50V
C736	1-161-379-00	CERAMIC	0.01MF	30%	16V
C737	1-161-379-00	CERAMIC	0.01MF	30%	16V
C738	1-161-379-00	CERAMIC	0.01MF	30%	16V
C739	1-161-379-00	CERAMIC	0.01MF	30%	16V
C740	1-124-963-11	ELECT	33MF	20%	16V
C743	1-130-479-00	MYLAR	0.0047MF	5%	50V
C744	1-124-499-11	ELECT	1MF	20%	50V
C745	1-130-475-00	MYLAR	0.0022MF	5%	50V
C746	1-130-471-00	MYLAR	0.001MF	5%	50V
C747	1-102-966-00	CERAMIC	43PF	5%	50V
C748	1-126-176-11	ELECT	220MF	20%	6.3V
C749	1-124-499-11	ELECT	1MF	20%	50V
C750	1-130-488-00	MYLAR	0.027MF	5%	50V
C751	1-124-499-11	ELECT	1MF	20%	50V
C752	1-124-604-00	ELECT	330MF	20%	10V
C753	1-126-176-11	ELECT	220MF	20%	6.3V
C754	1-124-438-00	ELECT	1MF	20%	50V
C755	1-130-475-00	MYLAR	0.0022MF	5%	50V
C756	1-130-471-00	MYLAR	0.001MF	5%	50V

Ref.No.	Part No.	Description			
C757	1-102-966-00	CERAMIC	43PF	5%	50V
C758	1-124-499-11	ELECT	1MF	20%	50V
C759	1-124-499-11	ELECT	1MF	20%	50V
C760	1-130-488-00	MYLAR	0.027MF	5%	50V
C761	1-136-173-00	FILM	0.47MF	5%	50V
C763	1-162-199-31	CERAMIC	10PF	5%	50V
C764	1-162-199-31	CERAMIC	10PF	5%	50V
C765	1-162-294-31	CERAMIC	0.001MF	10%	50V
C767	1-162-294-31	CERAMIC	0.001MF	10%	50V
C768	1-162-851-11	CERAMIC	0.1MF		16V
C770	1-124-360-00	ELECT	1000MF	20%	16V
C771	1-124-499-11	ELECT	1MF	20%	50V
C772	1-123-382-00	ELECT	3.3MF	20%	50V
C773	1-123-382-00	ELECT	3.3MF	20%	50V
C774	1-123-382-00	ELECT	3.3MF	20%	50V
C775	1-123-382-00	ELECT	3.3MF	20%	50V
C780	1-124-963-11	ELECT	33MF	20%	16V
C781	1-124-963-11	ELECT	33MF	20%	16V
C784	1-126-176-11	ELECT	220MF	20%	6.3V
C790	1-161-379-00	CERAMIC	0.01MF	30%	16V
C791	1-124-927-11	ELECT	4.7MF	20%	50V
C792	1-124-499-11	ELECT	1MF	20%	50V
C794	1-124-499-11	ELECT	1MF	20%	50V
C801	1-124-963-11	ELECT	33MF	20%	16V
C802	1-161-379-00	CERAMIC	0.01MF	30%	16V
C803	1-162-219-31	CERAMIC	68PF	5%	50V
C804	1-162-219-31	CERAMIC	68PF	5%	50V
C851	1-162-292-31	CERAMIC	680PF	10%	50V
C852	1-162-215-31	CERAMIC	47PF	5%	50V
C853	1-162-215-31	CERAMIC	47PF	5%	50V
C901	1-124-499-11	ELECT	1MF	20%	50V
C902	1-162-562-11	CERAMIC	0.22MF		16V
C903	1-162-562-11	CERAMIC	0.22MF		16V
C904	1-162-562-11	CERAMIC	0.22MF		16V
C905	1-124-120-11	ELECT	220MF	20%	16V
C906	1-162-562-11	CERAMIC	0.22MF		16V
CF1 CF2 CF3	1-577-327-81	FILTER, CERAMIC			
CN1	1-536-354-00	POST PIN			
CN301	*1-564-707-11	PIN, CONNECTOR (SMALL TYPE) 5P			
CN303	*1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P			
CN304	*1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P			
CN305	*1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P			
CN306	*1-564-708-11	PIN, CONNECTOR (SMALL TYPE) 6P			
CN307	*1-568-450-11	HOUSING, CONNECTOR(PC BOARD)4P			
CN351	*1-564-708-11	PIN, CONNECTOR (SMALL TYPE) 6P			
CN352	*1-564-706-11	PIN, CONNECTOR (SMALL TYPE) 4P			
CN504	*1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P			
CN551	*1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P			
CN601	*1-564-721-11	PIN, CONNECTOR (SMALL TYPE) 5P			
CN705	*1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P			
CN706	*1-564-722-31	PIN, CONNECTOR (SMALL TYPE) 6P			
CN707	*1-564-708-11	PIN, CONNECTOR (SMALL TYPE) 6P			
CN708	*1-564-710-11	PIN, CONNECTOR (SMALL TYPE) 8P			
CN709	*1-564-710-11	PIN, CONNECTOR (SMALL TYPE) 8P			
CN710	*1-565-980-11	HOUSING, CONNECTOR(PC BOARD)9P			

Ref.No.	Part No.	Description
CN717	*1-564-722-11	PIN, CONNECTOR (SMALL TYPE) 6P
CN901	*1-565-835-11	SOCKET, CONNECTOR 3P
CN902	1-536-354-00	POST PIN
CN903	*1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P
CP1	1-236-047-11	ENCAPSULATED COMPONENT
CT2	1-141-290-41	CAP, VAR FILM TRIMMER
CT3	1-141-245-00	CAP, TRIMMER
CT6	1-141-245-00	CAP, TRIMMER
CT1 CV1	1-151-637-11	CAP, VARIABLE
D1	8-719-911-19	DIODE 1SS119
D2	8-719-911-19	DIODE 1SS119
D3	8-719-911-19	DIODE 1SS119
D4	8-719-911-19	DIODE 1SS119
D302	8-719-976-29	DIODE SLB-55VR70F140
D304	8-719-109-89	DIODE RD5.6ES-B2
D305	8-719-911-19	DIODE 1SS119
D306	8-719-911-19	DIODE 1SS119
D307	8-719-911-19	DIODE 1SS119
D309	8-719-911-19	DIODE 1SS119
D311	8-719-911-19	DIODE 1SS119
D312	8-719-911-19	DIODE 1SS119
D315	8-719-911-19	DIODE 1SS119
D316	8-719-911-19	DIODE 1SS119
D317	8-719-976-29	DIODE SLB-55VR70F140
D318	8-719-109-96	DIODE RD6.8ES-B1
D701	8-719-911-19	DIODE 1SS119
D702	8-719-911-19	DIODE 1SS119
D801	8-719-911-19	DIODE 1SS119
D802	8-719-911-19	DIODE 1SS119
D804	8-719-911-19	DIODE 1SS119
D805	8-719-911-19	DIODE 1SS119
D901	8-719-500-55	DIODE D3SBA10
F901 ⚠	1-532-237-00	FUSE, TIME-LAG T3.15A 250V
FL1	1-236-022-11	FILTER, BAND PASS
HE901	1-543-535-11	HEAD, MAGNETIC (ERASE)
HRP901	1-543-628-11	HEAD, MAGNETIC (REC/PB)
IC1	8-752-035-68	IC CXA1238S
IC301	8-759-942-24	IC BA3312N
IC302	8-759-820-22	IC LA4597
IC701	8-752-033-14	IC CXA1081Q
IC702	8-752-032-32	IC CXA1182Q-Z
IC703	8-752-329-15	IC CXD1130Q
IC704	8-752-323-64	IC CXK5816M-12L
IC706	8-759-945-58	IC RC4558P
IC707	8-759-145-25	IC UPD6372GS
IC708	8-759-984-37	IC BA6293
IC709	8-759-984-37	IC BA6293
IC801	8-752-811-21	IC CXP5024-083Q
IC802	8-759-945-58	IC RC4558P
IC804	8-759-971-12	IC PST529E
J301	1-563-330-11	JACK (MIX MIC)
J302	1-566-891-11	JACK (PHONES)
J901 ⚠	1-526-838-11	INLET, AC 2P (AC IN)

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description
L1	*1-422-386-11	COIL, AIR-CORE
L2	1-459-904-11	COIL (WITH CORE)
L3, L4	1-402-454-11	ANTENNA, FERRITE-ROD (LW/MW)
L5	1-410-314-11	INDUCTOR 0.47UH
L6	1-410-974-11	INDUCTOR 33UH
L7	1-410-971-11	INDUCTOR 10UH
L301	1-408-159-00	INDUCTOR 3.3UH
L701	1-410-316-11	INDUCTOR 1UH
L702	1-410-974-11	INDUCTOR 33UH
L901	1-408-159-00	INDUCTOR 3.3UH
LCD1	1-808-726-11	DISPLAY PANEL, LIQUID CRYSTAL
LF901 ⚠	1-424-150-11	TRANSFORMER, LINE FILTER
M701	X-2640-770-1	MOTOR ASSY, SLED (WITH GEAR)
M702	1-541-353-11	MOTOR, SPINDLE
M901	1-541-625-11	MOTOR, DC
Q1	8-729-672-42	TRANSISTOR 2SC2724-C
Q101	8-729-905-50	TRANSISTOR DTC343TS
Q102	8-729-119-78	TRANSISTOR 2SC2785HFE
Q103	8-729-900-89	TRANSISTOR DTC144ES
Q104	8-729-900-89	TRANSISTOR DTC144ES
Q201	8-729-905-50	TRANSISTOR DTC343TS
Q202	8-729-119-78	TRANSISTOR 2SC2785HFE
Q203	8-729-900-89	TRANSISTOR DTC144ES
Q204	8-729-900-89	TRANSISTOR DTC144ES
Q301	8-729-119-78	TRANSISTOR 2SC2785HFE
Q302	8-729-119-78	TRANSISTOR 2SC2785HFE
Q304	8-729-900-65	TRANSISTOR DTA144ES
Q305	8-729-100-13	TRANSISTOR 2SC2001
Q306	8-729-900-89	TRANSISTOR DTC144ES
Q307	8-729-905-67	TRANSISTOR 2SD1944-K
Q308	8-729-116-57	TRANSISTOR 2SB1013-3
Q309	8-729-119-78	TRANSISTOR 2SC2785HFE
Q310	8-729-205-02	TRANSISTOR 2SA1150
Q311	8-729-900-89	TRANSISTOR DTC144ES
Q314	8-729-119-78	TRANSISTOR 2SC2785HFE
Q315	8-729-900-65	TRANSISTOR DTA144ES
Q701	8-729-116-57	TRANSISTOR 2SB1013-3
Q702	8-729-119-78	TRANSISTOR 2SC2785HFE
Q703	8-729-119-78	TRANSISTOR 2SC2785HFE
Q704	8-729-119-78	TRANSISTOR 2SC2785HFE
Q705	8-729-900-63	TRANSISTOR DTA124ES
Q706	8-729-119-76	TRANSISTOR 2SA1175HFE
Q711	8-729-900-36	TRANSISTOR DTC124ES
Q712	8-729-119-78	TRANSISTOR 2SC2785HFE
Q713	8-729-119-78	TRANSISTOR 2SC2785HFE
Q714	8-729-900-63	TRANSISTOR DTA124ES
Q791	8-729-900-36	TRANSISTOR DTC124ES
Q792	8-729-900-36	TRANSISTOR DTC124ES
Q801	8-729-900-63	TSANSISTOR DTA124ES
Q802	8-729-900-74	TRANSISTOR DTC143TS
Q803	8-729-119-78	TRANSISTOR 2SC2785HFE
R1	1-249-441-11	CARBON 100K 5% 1/4W
R2	1-249-434-11	CARBON 27K 5% 1/4W
R3	1-249-424-11	CARBON 3.9K 5% 1/4W
R4	1-249-405-11	CARBON 100 5% 1/4W
R5	1-249-405-11	CARBON 100 5% 1/4W
R6	1-249-405-11	CARBON 100 5% 1/4W
R7	1-249-405-11	CARBON 100 5% 1/4W
R8	1-249-421-11	CARBON 2.2K 5% 1/4W
R9	1-249-411-11	CARBON 330 5% 1/4W
R10	1-249-401-11	CARBON 47 5% 1/4W
R11	1-249-429-11	CARBON 10K 5% 1/4W
R12	1-247-887-00	CARBON 220K 5% 1/4W
R13	1-249-421-11	CARBON 2.2K 5% 1/4W
R14	1-247-887-00	CARBON 220K 5% 1/4W
R15	1-249-427-11	CARBON 6.8K 5% 1/4W
R16	1-249-427-11	CARBON 6.8K 5% 1/4W
R17	1-249-441-11	CARBON 100K 5% 1/4W
R18	1-249-402-11	CARBON 56 5% 1/4W
R19	1-249-409-11	CARBON 220 5% 1/4W
R20	1-249-426-11	CARBON 5.6K 5% 1/4W
R21	1-249-429-11	CARBON 10K 5% 1/4W
R101	1-249-411-11	CARBON 330 5% 1/4W
R102	1-249-410-11	CARBON 270 5% 1/4W
R103	1-249-424-11	CARBON 3.9K 5% 1/4W
R104	1-249-406-11	CARBON 120 5% 1/4W
R106	1-249-431-11	CARBON 15K 5% 1/4W
R107	1-249-420-11	CARBON 1.8K 5% 1/4W
R108	1-249-430-11	CARBON 12K 5% 1/4W
R109	1-249-414-11	CARBON 560 5% 1/4W
R111	1-249-432-11	CARBON 18K 5% 1/4W
R112	1-249-430-11	CARBON 12K 5% 1/4W
R113	1-249-421-11	CARBON 2.2K 5% 1/4W
R114	1-249-431-11	CARBON 15K 5% 1/4W
R115	1-249-430-11	CARBON 12K 5% 1/4W
R116	1-249-421-11	CARBON 2.2K 5% 1/4W
R117	1-249-431-11	CARBON 15K 5% 1/4W
R118	1-249-436-11	CARBON 39K 5% 1/4W
R120	1-247-899-11	CARBON 680K 5% 1/4W
R121	1-249-421-11	CARBON 2.2K 5% 1/4W
R122	1-249-405-11	CARBON 100 5% 1/4W
R125	1-249-422-11	CARBON 2.7K 5% 1/4W
R126	1-249-414-11	CARBON 560 5% 1/4W
R127	1-249-423-11	CARBON 3.3K 5% 1/4W
R128	1-249-423-11	CARBON 3.3K 5% 1/4W
R132	1-249-401-11	CARBON 47 5% 1/4W
R134	1-249-429-11	CARBON 10K 5% 1/4W
R135 ⚠	1-217-640-11	FUSIBLE 3.3 5% 1/4W F
R136	1-249-404-00	CARBON 82 5% 1/4W
R201	1-249-411-11	CARBON 330 5% 1/4W
R202	1-249-410-11	CARBON 270 5% 1/4W
R203	1-249-424-11	CARBON 3.9K 5% 1/4W
R204	1-249-406-11	CARBON 120 5% 1/4W
R206	1-249-431-11	CARBON 15K 5% 1/4W
R207	1-249-420-11	CARBON 1.8K 5% 1/4W
R208	1-249-430-11	CARBON 12K 5% 1/4W
R209	1-249-414-11	CARBON 560 5% 1/4W
R211	1-249-432-11	CARBON 18K 5% 1/4W
R212	1-249-430-11	CARBON 12K 5% 1/4W
R213	1-249-421-11	CARBON 2.2K 5% 1/4W
R214	1-249-431-11	CARBON 15K 5% 1/4W
R215	1-249-430-11	CARBON 12K 5% 1/4W
R216	1-249-421-11	CARBON 2.2K 5% 1/4W

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
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Ref.No.	Part No.	Description				
R217	1-249-431-11	CARBON	15K	5%	1/4W	
R218	1-249-436-11	CARBON	39K	5%	1/4W	
R220	1-247-899-11	CARBON	680K	5%	1/4W	
R221	1-249-421-11	CARBON	2.2K	5%	1/4W	
R222	1-249-405-11	CARBON	100	5%	1/4W	
R225	1-249-422-11	CARBON	2.7K	5%	1/4W	
R226	1-249-414-11	CARBON	560	5%	1/4W	
R227	1-249-423-11	CARBON	3.3K	5%	1/4W	
R228	1-249-423-11	CARBON	3.3K	5%	1/4W	
R232	1-249-401-11	CARBON	47	5%	1/4W	
R234	1-249-429-11	CARBON	10K	5%	1/4W	
R235 ⚠	1-217-640-11	FUSIBLE	3.3	5%	1/4W	F
R236	1-249-404-00	CARBON	82	5%	1/4W	
R301	1-249-421-11	CARBON	2.2K	5%	1/4W	
R302	1-249-411-11	CARBON	330	5%	1/4W	
R303	1-247-891-00	CARBON	330K	5%	1/4W	
R304	1-249-421-11	CARBON	2.2K	5%	1/4W	
R305	1-249-409-11	CARBON	220	5%	1/4W	
R309	1-249-405-11	CARBON	100	5%	1/4W	
R310	1-247-903-00	CARBON	1M	5%	1/4W	
R312	1-249-397-11	CARBON	22	5%	1/4W	
R313	1-249-393-11	CARBON	10	5%	1/4W	
R314	1-249-429-11	CARBON	10K	5%	1/4W	
R315	1-249-401-11	CARBON	47	5%	1/4W	
R316	1-249-423-11	CARBON	3.3K	5%	1/4W	
R318	1-247-887-00	CARBON	220K	5%	1/4W	
R319	1-249-425-11	CARBON	4.7K	5%	1/4W	
R320	1-249-405-11	CARBON	100	5%	1/4W	
R321	1-249-425-11	CARBON	4.7K	5%	1/4W	
R322 ⚠	1-217-637-00	FUSIBLE	1	5%	1/4W	F
R323	1-249-417-11	CARBON	1K	5%	1/4W	
R326	1-249-409-11	CARBON	220	5%	1/4W	
R327	1-249-414-11	CARBON	560	5%	1/4W	
R328	1-249-437-11	CARBON	47K	5%	1/4W	
R329	1-249-407-11	CARBON	150	5%	1/4W	
R330	1-249-417-11	CARBON	1K	5%	1/4W	
R331 ⚠	1-217-637-00	FUSIBLE	1	5%	1/4W	F
R333	1-249-405-11	CARBON	100	5%	1/4W	
R334	1-249-425-11	CARBON	4.7K	5%	1/4W	
R335	1-249-425-11	CARBON	4.7K	5%	1/4W	
R336	1-249-405-11	CARBON	100	5%	1/4W	
R337	1-249-417-11	CARBON	1K	5%	1/4W	
R340	1-249-435-11	CARBON	33K	5%	1/4W	
R342 ⚠	1-217-637-00	FUSIBLE	1	5%	1/4W	F
R346	1-249-417-11	CARBON	1K	5%	1/4W	
R347	1-249-437-11	CARBON	47K	5%	1/4W	
R348	1-249-425-11	CARBON	4.7K	5%	1/4W	
R349	1-249-419-11	CARBON	1.5K	5%	1/4W	
R350	1-249-419-11	CARBON	1.5K	5%	1/4W	
R351	1-249-425-11	CARBON	4.7K	5%	1/4W	
R358	1-249-425-11	CARBON	4.7K	5%	1/4W	
R701	1-249-433-11	CARBON	22K	5%	1/4W	
R702	1-249-417-11	CARBON	1K	5%	1/4W	
R703	1-249-433-11	CARBON	22K	5%	1/4W	
R704	1-249-397-11	CARBON	22	5%	1/4W	
R705	1-247-806-11	CARBON	91	5%	1/4W	
R711	1-249-428-11	CARBON	8.2K	5%	1/4W	

Ref.No.	Part No.	Description			
R712	1-247-856-00	CARBON	11K	5%	1/4W
R713	1-249-441-11	CARBON	100K	5%	1/4W
R714	1-249-425-11	CARBON	4.7K	5%	1/4W
R715	1-249-441-11	CARBON	100K	5%	1/4W
R716	1-247-886-11	CARBON	200K	5%	1/4W
R717	1-249-422-11	CARBON	2.7K	5%	1/4W
R718	1-247-903-00	CARBON	1M	5%	1/4W
R719	1-249-417-11	CARBON	1K	5%	1/4W
R720	1-247-883-00	CARBON	150K	5%	1/4W
R721	1-249-437-11	CARBON	47K	5%	1/4W
R722	1-249-429-11	CARBON	10K	5%	1/4W
R723	1-249-441-11	CARBON	100K	5%	1/4W
R724	1-249-438-11	CARBON	56K	5%	1/4W
R725	1-247-885-00	CARBON	180K	5%	1/4W
R726	1-249-437-11	CARBON	47K	5%	1/4W
R727	1-249-441-11	CARBON	100K	5%	1/4W
R728	1-247-854-11	CARBON	9.1K	5%	1/4W
R729	1-247-894-11	CARBON	430K	5%	1/4W
R730	1-249-441-11	CARBON	100K	5%	1/4W
R731	1-215-457-00	METAL	33K	1%	1/6W
R732	1-215-457-00	METAL	33K	1%	1/6W
R733	1-247-895-00	CARBON	470K	5%	1/4W
R734	1-249-417-11	CARBON	1K	5%	1/4W
R735	1-249-417-11	CARBON	1K	5%	1/4W
R736	1-249-429-11	CARBON	10K	5%	1/4W
R743	1-215-438-00	METAL	5.1K	1%	1/6W
R744	1-215-461-00	METAL	47K	1%	1/6W
R745	1-215-453-00	METAL	22K	1%	1/6W
R746	1-215-461-00	METAL	47K	1%	1/6W
R747	1-249-431-11	CARBON	15K	5%	1/4W
R748	1-249-422-11	CARBON	2.7K	5%	1/4W
R749	1-247-834-11	CARBON	1.3K	5%	1/4W
R750	1-249-414-11	CARBON	560	5%	1/4W
R751	1-247-903-00	CARBON	1M	5%	1/4W
R752	1-249-430-11	CARBON	12K	5%	1/4W
R753	1-215-438-00	METAL	5.1K	1%	1/6W
R754	1-215-461-00	METAL	47K	1%	1/6W
R755	1-215-453-00	METAL	22K	1%	1/6W
R756	1-215-461-00	METAL	47K	1%	1/6W
R757	1-247-887-00	CARBON	220K	5%	1/4W
R758	1-249-422-11	CARBON	2.7K	5%	1/4W
R759	1-247-834-11	CARBON	1.3K	5%	1/4W
R760	1-249-414-11	CARBON	560	5%	1/4W
R761	1-247-903-00	CARBON	1M	5%	1/4W
R762	1-249-422-11	CARBON	2.7K	5%	1/4W
R763	1-249-422-11	CARBON	2.7K	5%	1/4W
R764	1-247-887-00	CARBON	220K	5%	1/4W
R765	1-249-395-11	CARBON	15	5%	1/4W
R766	1-249-395-11	CARBON	15	5%	1/4W
R768	1-249-405-11	CARBON	100	5%	1/4W
R770	1-215-453-00	METAL	22K	1%	1/6W
R771	1-215-453-00	METAL	22K	1%	1/6W
R772	1-215-453-00	METAL	22K	1%	1/6W
R773	1-215-453-00	METAL	22K	1%	1/6W
R774	1-215-429-00	METAL	2.2K	1%	1/6W
R775	1-215-457-00	METAL	33K	1%	1/6W
R776	1-215-457-00	METAL	33K	1%	1/6W

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No.	Part No.	Description				
R777	1-215-457-00	METAL	33K	1%	1/6W	
R778	1-215-433-00	METAL	3.3K	1%	1/6W	
R779	1-247-868-11	CARBON	36K	5%	1/4W	
R780	1-249-435-11	CARBON	33K	5%	1/4W	
R781	1-247-876-11	CARBON	75K	5%	1/4W	
R782	1-249-435-11	CARBON	33K	5%	1/4W	
R783	1-249-417-11	CARBON	1K	5%	1/4W	
R784	1-249-429-11	CARBON	10K	5%	1/4W	
R785	1-249-410-11	CARBON	270	5%	1/4W	
R786	1-249-425-11	CARBON	4.7K	5%	1/4W	
R787 ⚠	1-212-861-11	FUSIBLE	15	5%	1/4W	F
R789	1-249-433-11	CARBON	22K	5%	1/4W	
R791	1-247-838-00	CARBON	2K	5%	1/4W	
R792	1-249-437-11	CARBON	47K	5%	1/4W	
R793	1-249-429-11	CARBON	10K	5%	1/4W	
R794	1-249-405-11	CARBON	100	5%	1/4W	
R801	1-249-435-11	CARBON	33K	5%	1/4W	
R802	1-249-435-11	CARBON	33K	5%	1/4W	
R803	1-249-435-11	CARBON	33K	5%	1/4W	
R805	1-249-437-11	CARBON	47K	5%	1/4W	
R806	1-249-437-11	CARBON	47K	5%	1/4W	
R807	1-249-441-11	CARBON	100K	5%	1/4W	
R808	1-249-441-11	CARBON	100K	5%	1/4W	
R809	1-249-437-11	CARBON	47K	5%	1/4W	
R810	1-249-405-11	CARBON	100	5%	1/4W	
R821	1-249-441-11	CARBON	100K	5%	1/4W	
R851	1-215-457-00	METAL	33K	1%	1/6W	
R852	1-247-893-11	CARBON	390K	5%	1/4W	
R853	1-249-441-11	CARBON	100K	5%	1/4W	
R854	1-247-895-00	CARBON	470K	5%	1/4W	
R855	1-249-441-11	CARBON	100K	5%	1/4W	
RV1	1-238-017-11	RES, ADJ, CARBON 22K				
RV2	1-238-651-11	RES, VAR, CARBON 100K (FINE TUNING)				
RV301	1-238-606-11	RES, VAR, CARBON 50K/50K (VOLUME)				
RV302	1-238-607-11	RES, VAR, CARBON 50K/50K (TONE)				
RV701	1-228-995-00	RES, ADJ, CARBON 20K				
RV702	1-228-996-00	RES, ADJ, CARBON 50K				
RV703	1-228-991-00	RES, ADJ, METAL GLAZE 2.2K				
RV704	1-230-497-11	RES, ADJ, CARBON 20K				
RV705	1-230-497-11	RES, ADJ, CARBON 20K				
S1	1-572-013-11	SWITCH, LEVER SLIDE (BAND)				
S301	1-571-969-11	SWITCH, LEVER SLIDE				
S302	1-571-948-11	SWITCH, SLIDE (REC/PB)				
S303	1-571-307-11	SWITCH, SLIDE (ISS/FM MODE)				
S304	1-571-042-11	SWITCH, PUSH (1 KEY)(BASS BOOST)				
S305	1-570-913-11	SWITCH, PUSH (POWER)				

Ref.No.	Part No.	Description
S601	1-571-330-21	SWITCH, LEAF (MOTOR POWER)
S602	1-571-890-11	SWITCH, LEAF (PB)
S603	1-571-890-11	SWITCH, LEAF (FF/REW)
S801	1-571-936-11	SWITCH, LEAF (OPEN/CLOSE)
S802	1-571-936-11	SWITCH, LEAF (LIMIT)
S803	1-571-760-11	SWITCH, KEY BOARD (▶)
S804	1-571-760-11	SWITCH, KEY BOARD (■)
S805	1-571-760-11	SWITCH, KEY BOARD (⏮)
S806	1-571-760-11	SWITCH, KEY BOARD (⏭)
S807	1-571-760-11	SWITCH, KEY BOARD (⏸)
S808	1-571-760-11	SWITCH, KEY BOARD (PEPEAT 1/ALL,SHUFFLE)
S809	1-571-760-11	SWITCH, KEY BOARD (REMAIN)
SP101	1-544-148-21	SPEAKER
SP201	1-544-148-21	SPEAKER
T1	1-406-356-11	COIL (OSC)
T2	1-406-354-11	COIL (OSC)
T3	1-406-353-11	COIL (OSC)
T4	1-402-455-11	COIL (ANT)
T301	1-433-321-11	TRANSFORMER, BIAS OSCILLATION
T901 ⚠	1-449-773-11	(AEP,West Germany,Italian) ...TRANSFORMER, POWER
T901 ⚠	1-449-774-11	(UK).....TRANSFORMER, POWER
W307	*1-568-453-11	PIN, CONNECTOR (PC BOARD) 4P
W710	*1-568-454-11	PIN, CONNECTOR (PC BOARD) 9P
W901	1-506-569-11	PIN, CONNECTOR 3P
X801	1-567-094-00	VIBRATOR, CERAMIC 3.58MHz
XF701	1-567-908-11	VIBRATOR, CRYSTAL 16.9344MHz

ACCESSORY & PACKING MATERIAL

⚠ 1-555-234-00	(AEP,West Germany,Italian)..CORD, POWER
⚠ 1-558-032-11	(UK).....CORD, POWER
3-750-235-11	(AEP,UK,West Germany) ...MANUAL, INSTRUCTION
3-750-235-41	(AEP,West Germany,Italian) ...MANUAL, INSTRUCTION
*4-921-197-01	CUSHION (LEFT) (RIGHT)
*4-931-360-01	INDIVIDUAL CARTON

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.